

ROBERT J. ANNESE
ATTORNEY AT LAW

January 15, 2021

Jennifer Raitt, Director
Department of Planning and Community Development
Town of Arlington
730 Massachusetts Avenue
Arlington, MA 02476

RE: 10 Sunnyside Avenue, Arlington, MA

Dear Ms. Raitt:

I am sending along an Application for Environmental Review filed in behalf of MB Realty Group, the owner of real estate located at 339 Massachusetts Avenue, Arlington.

Also, together with the Application are the following documents;

- Required Submittals Checklist;
- Dimensional and Parking Information form;
- Plans of Khalsa Design Incorporated;
- Stormwater Management Report of EBI Consulting;
- Supplemental Traffic Study of Nitsch Engineering;
- LEEDs project checklist;
- Environmental Impact Statement; and
- Special Permit Criteria form along with an Environmental Design Review Standards form.

I am also sending along a check in the amount of \$2,100.00 representing the filing fee based upon a calculation of \$500.00 plus \$0.20 per square foot of the new construction of 8,000 square feet.

This Application is being filed digitally and I am sending two (2) hard copies to your office as well.

Would you please let me know the date the Application will be heard by the ARB.

Thank you for your cooperation.

Very truly yours,



Robert J. Annese

Enclosures

NB Realty Group, LLC

0991
53-13/110 MA
82989

DATE 12/30/2020

PAY
TO THE
ORDER OF

Town of Arlington

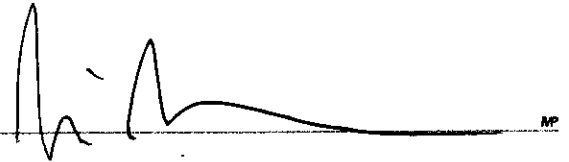
\$ 2,100.00

Two thousand one hundred and 00/100 DOLLARS

Security
Features
Details on
Back

Bank of America

FOR Town Review



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TOWN OF ARLINGTON
REDEVELOPMENT BOARD

Application for Special Permit In Accordance with Environmental Design
Review Procedures (Section 3.4 of the Zoning Bylaw)

Docket No. _____

1. Property Address: 10 Sunnyside Ave., Arlington, MA
Name of Record Owner(s): MB Realty Group, LLC Phone: (847) 414-3081
Address of Owner: 339 Massachusetts Ave., Arlington, MA 02474
Street City, State, ZIP
2. Name of Applicant(s) (if different than above): SAME
Address: _____ Phone: _____
Status Relative to Property (occupant, purchaser, etc.): _____
3. Location of Property: Map 033.0, Block 0002, Lot 0002.B
Assessor's Block Plan, Block, Lot No.
4. Deed recorded in the Registry of deeds, Book 73883, Page 259;
or- registered in Land Registration Office, Cert. No _____, Book _____, Page _____
5. Present Use of Property (include # of dwelling units, if any): automotive use, one unit
6. Proposed Use of Property (include # of dwelling units, if any): one mixed-use building with general office and residential space that will include 5 condominiums, including an indoor garage and outdoor surface parking

7.

Permit applied for in accordance with the following Zoning Bylaw section(s):	<u>Section 3.4</u> <u>Section 5.5.2</u> <u>Section 5.3.19</u>	<u>Environmental Design Review</u> <u>Dimensional and density regulations</u> <u>SP mixed use bylaw</u> <u>Reduced height buffer</u>
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8. Please attach a statement that describes your project and provide any additional information that may aid the ARB in understanding the permits you request. Include any reasons that you feel you should be granted the requested permission.

Please see attached.

(In the statement below, strike out the words that do not apply)

The applicant states that MB Realty Group, LLC is the owner of the property in Arlington located at 10 Sunnyside Ave. which is the subject of this application; and that unfavorable action -or- no unfavorable action has been taken by the Zoning Board of Appeals on a similar application regarding this property within the last two years. The applicant expressly agrees to comply with any and all conditions and qualifications imposed upon this permission, either by the Zoning Bylaw or by the Redevelopment Board, should the permit be granted.

Signature of Applicant(s)

Address

Phone

Town of Arlington Redevelopment Board
Application for Special Permit in accordance with
Environmental Design Review (Section 3.4)

Required Submittals Checklist

File each in triplicate except for model
References are to Arlington Zoning Bylaw

- ☒ Dimensional and Parking Information Form
- ☒ Site plan of proposal
- ☐ Model, if required
- ☒ Drawing of proposed structure
- ☒ Proposed landscaping. May be incorporated into site plan
- ☐ Photographs
- ☒ Impact statement
- ☐ Application and plans for sign permits
- ☒ Stormwater management plan (for stormwater management during construction for projects with new construction)

FOR OFFICE USE ONLY

- | | |
|---|-------------|
| <input type="checkbox"/> Special Permit Granted | Date: _____ |
| <input type="checkbox"/> Received evidence of filing with Registry of Deeds | Date: _____ |
| <input type="checkbox"/> Notified Building Inspector of Special Permit filing | Date: _____ |

TOWN OF ARLINGTON

Dimensional and Parking Information
for Application to
The Arlington Redevelopment Board

Docket No. _____

Property Location 10 Sunnyside Ave

Zoning District B4

Owner: Column Health LLC

Address: 339 Massachusetts Avenue

Present Use/Occupancy: No. of Dwelling Units:
Auto Repair: No current DU's

Uses and their gross square feet:
5,523 sf of Auto Repair and vehicle storage

Proposed Use/Occupancy: No. of Dwelling Units:
Mixed-Use (Office & Residential): 5 DU

Uses and their gross square feet:
Office: 8,082 sf / Residential: 19,428 sf

	<u>Present Conditions</u>	<u>Proposed Conditions</u>	<u>Min. or Max. Required by Zoning for Proposed Use</u>
Lot Size	16,500 sf	16,500 sf	min. n/a
Frontage	150'-2"	150'-2"	min. 50'-0"
Floor Area Ratio	.33	1.5	max. 1.5
Lot Coverage (%), where applicable	n/a	n/a	max. n/a
Lot Area per Dwelling Unit (square feet)	n/a	n/a	min. n/a
Front Yard Depth (feet)	4'-2"	4'-2"	min. 0'-0"
Side Yard Width (feet) right side	71'-0"	4'-11 1/2"	min. 0'-0"
left side	1'-0"	1'-0" (exist)	min. 0'-0"
Rear Yard Depth (feet)	0'-4"	16'-6 3/4"	min. 16'-6"
Height	+/- 15'-0"	49'-0"	min. 60'-0"
Stories	1.5	5	stories 5
Feet	+/- 15'-0"	49'-0"	feet 60'-0"
Open Space (% of G.F.A.)	n/a	1,780 sf	min. n/a
Landscaped (square feet)	unknown	1,780 sf	(s.f.) 10% (1,650 sf)
Usable (square feet)	unknown	2,643 sf	(s.f.) 20% (3,300 sf)
Parking Spaces (No.)	unknown	21 spaces	min. 20 spaces
Parking Area Setbacks (feet), where applicable	n/a	n/a	min. exempt
Loading Spaces (No.)	n/a	n/a	min. n/a
Type of Construction	TBD - Most likely Type 1 construction		
Distance to Nearest Building	+/- 35'-0"	+/- 35'-0"	min. n/a

TOWN OF ARLINGTON

REDEVELOPMENT BOARD

Petition for Special Permit under Environmental Design Review (see Section 3.4 of the Arlington Zoning Bylaw for Applicability)

For projects subject to Environmental Design Review, (see section 3.4), please submit a statement that completely describes your proposal, and addresses each of the following standards.

1. **Preservation of Landscape.** The landscape shall be preserved in its natural state, insofar as practicable, by minimizing tree and soil removal, and any grade changes shall be in keeping with the general appearance of neighboring developed areas.

The proposed plans increase the landscaping the site and will minimize tree and soil removal.

2. **Relation of Buildings to Environment.** Proposed development shall be related harmoniously to the terrain and to the use, scale, and architecture of existing buildings in the vicinity that have functional or visual relationship to the proposed buildings. The Arlington Redevelopment Board may require a modification in massing so as to reduce the effect of shadows on abutting property in an RU, RI or R2 district or on public open space.

The proposed buildings are related harmoniously to the terrain and to the use, scale, and architecture of existing building in the vicinity of the property.

3. **Open Space.** All open space (landscaped and usable) shall be so designed as to add to the visual amenities of the vicinity by maximizing its visibility for persons passing the site or overlooking it from nearby properties. The location and configuration of usable open space shall be so designed as to encourage social interaction, maximize its utility, and facilitate maintenance.

All open space, both landscaped and usable has been designed in order to enhance the level of landscaped open space and usable open space.

4. **Circulation.** With respect to vehicular, pedestrian and bicycle circulation, including entrances, ramps, walkways, drives, and parking, special attention shall be given to location and number of access points to the public streets (especially in relation to existing traffic controls and mass transit facilities), width of interior drives and access points, general interior circulation, separation of pedestrian and vehicular traffic, access to community facilities, and arrangement of vehicle parking and bicycle parking areas, including bicycle parking spaces required by Section 8.13 that are safe and convenient and, insofar as practicable, do not detract from the use and enjoyment of proposed buildings and structures and the neighboring properties.

The Applicant has submitted a traffic study of Nitsch Engineering which details the volume of traffic, safety issues, traffic patterns and other issues related to traffic with a conclusion on the part of the author of the traffic report that there will be no adverse impact upon the existing traffic conditions as a result of Applicant's development.

5. **Surface Water Drainage.** Special attention shall be given to proper site surface drainage so that removal of surface waters will not adversely affect neighboring properties or the public storm drainage system. Available Best Management Practices for the site should be employed, and include site planning to minimize impervious surface and reduce clearing and re-grading. Best Management Practices may include erosion control and storm water treatment by means of swales, filters, plantings, roof gardens, native vegetation, and leaching catch basins. Storm water should be treated at least minimally on the development site; that which cannot be handled on site shall be removed from all roofs, canopies, paved and pooling areas and carried away in an underground drainage system. Surface water in all paved areas shall be collected at intervals so that it will not obstruct the flow of vehicular or pedestrian traffic, and will not create puddles in the paved areas.

In accordance with Section 3.3.4, the Board may require from any applicant, after consultation with the Director of Public Works, security satisfactory to the Board to insure the maintenance of all storm water facilities such as catch basins, leaching catch basins, detention basins, swales, etc. within the site. The Board may use funds provided by such security to conduct maintenance that the applicant fails to do. The Board may adjust in its sole discretion the amount and type of financial security such that it is satisfied that the amount is sufficient to provide for the future maintenance needs.

A stormwater management report has been prepared by EBI Consulting and the conclusion of the author of that report is that there will be no adverse impact upon surface water drainage as a result of the Applicant's development.

6. **Utility Service.** Electric, telephone, cable TV and other such lines and equipment shall be underground. The proposed method of sanitary sewage disposal and solid waste disposal from all buildings shall be indicated.

All utility service will be underground.

7. **Advertising Features.** The size, location, design, color, texture, lighting and materials of all permanent signs and outdoor advertising structures or features shall not detract from the use and enjoyment of proposed buildings and structures and the surrounding properties. Advertising features are subject to the provisions of Section 6.2 of the Zoning Bylaw.

It is Applicant's intent to discuss with the Planning Department any advertising plans it may have with respect to the project with the expectation that any planning could be dealt with administratively .

8. **Special Features.** Exposed storage areas, exposed machinery installations, service areas, truck loading areas, utility buildings and structures, and similar accessory areas and structures shall be subject to such setbacks, screen plantings or other screening methods as shall reasonably be required to prevent their being incongruous with the existing or contemplated environment and the surrounding properties.

Any machinery located at the property will be screened as shown on the Applicant's plans and there will be adequate screening methods put in place with respect to trash and related matters.

9. **Safety.** With respect to personal safety, all open and enclosed spaces shall be designed to facilitate building evacuation and maximize accessibility by fire, police, and other emergency personnel and equipment. Insofar as practicable, all exterior spaces and interior public and semi-public spaces shall be so designed as to minimize the fear and probability of personal harm or injury by increasing the potential surveillance by neighboring residents and passersby of any accident or attempted criminal act.

The interior and exterior of the building has been designed to facilitate building evacuation and maximizing accessibility by fire, police, and other emergency personal and equipment.

10. **Heritage.** With respect to Arlington's heritage, removal, or disruption of historic, traditional, or significant uses, structures, or architectural elements shall be minimized insofar as practicable, whether these exist on the site or on adjacent properties.

There will be no impact on Arlington's heritage with respect to the development.

11. **Microclimate.** With respect to the localized climatic characteristics of a given area, any development which proposes new structures, new hard-surface ground coverage, or the installation of machinery which emits heat, vapor, or fumes, shall endeavor to minimize, insofar as practicable, any adverse impact on light, air, and water resources, or on noise and temperature levels of the immediate environment.

There will be no adverse impact on light, air, and water resources, or on noise and temperature levels in the immediate environment of the property as a result of the Applicant's development.

12. **Sustainable Building and Site Design.** Projects are encouraged to incorporate best practices related to sustainable sites, water efficiency, energy and atmosphere, materials and resources, and indoor environmental quality.
- Applicants must submit a current Green Building Council Leadership in Energy and Environmental Design (LEED) checklist, appropriate to the type of development, annotated with narrative description that indicates how the LEED performance objectives will be incorporated into the project.
- [LEED checklists can be found at <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=220b>]

The Applicant has submitted a LEED checklist appropriate to the proposed development.

In addition, projects subject to Environmental Design Review must address and meet the following Special Permit Criteria (see Section 3.3.3 of the Zoning Bylaw)

1. The use requested is listed in the Table of Use Regulations as a special permit in the district for which application is made or is so designated elsewhere in this Bylaw.

Section 5.5.3 i.e., Use Regulations for business districts.

2. The requested use is essential or desirable to the public convenience or welfare.

The current condition of the site bears all of the history of a disused automotive use not in keeping with the majority of the buildings both business and residential located on Sunnyside Ave. The proposed development will clean up the site and create an attractive building in place of the prior automotive use.

3. The requested use will not create undue traffic congestion, or unduly impair pedestrian safety.

In accordance with the traffic study of Nitsch Engineering there will be no adverse impact and no undue impairment of pedestrian safety.

4. The requested use will not overload any public water, drainage or sewer system or any other municipal system to such an extent that the requested use or any developed use in the immediate area or in any other area of the Town will be unduly subjected to hazards affecting health, safety, or the general welfare.

The request use will not overload public water, drainage or sewer system or any other municipal system in the Town.

5. Any special regulations for the use, set forth in Article 11, are fulfilled.

Any special regulations for the use, set forth in Article 11, are fulfilled

6. The requested use will not impair the integrity or character of the district or adjoining districts, nor be detrimental to the health, morals, or welfare.

The requested use will not impair the integrity or character of the district or adjoining districts, nor be detrimental to the health, morals, or welfare because the proposed development will clean up a prior disused automotive use and construct a building which will fit in harmoniously with other buildings in the neighborhood of the property.

7. The requested use will not, by its addition to a neighborhood, cause an excess of that particular use that could be detrimental to the character of said neighborhood.

The requested use will not, by its addition to a neighborhood, cause an excess of that particular use that could be detrimental to the character of said neighborhood as there is no similar use being proposed that the Applicant is aware at this time.

10 Sunnyside Ave
Arlington, MA

Environmental Impact Statement

The Applicant proposes to modify and expand the existing building currently containing approximately a 5,400 square foot automotive center located in a B4 zone in order to construct a mixed-use building development on the site with approximately 8,000 square feet of general office and approximately 20,000 square feet of residential space that will include five (5) residential condominiums.

The relief sought by the Applicant implicates Section 3.4, Environmental Design Review, Section 5.5.2 Dimensional and Density Regulations, a special permit in accordance with the mixed-use bylaw and Section 5.3.19, reduced height buffer.

With respect to Section 5.3.19, the Applicant has submitted a Google aerial depiction showing the property in the B-4 zone of the property and showing the relation of that property to residential zoning districts located near the property.

The Google aerial depiction and the comments of the Applicant's architect indicate that 10 Sunnyside Ave is located approximately 165'0" to the beginning of the R-1 zone on Michael Street looking north as denoted with a white line and arrow.

The 10 Sunnyside Ave property is located approximately 252'0" to the beginning of the R-2 zone on Sunnyside Avenue looking northeast as denoted with a yellow line and arrow shown on the Google aerial depiction.

The provisions of Section of 5.3.19 contained in the Bylaw contain the following calculations with respect to determining the height level which will apply to the Applicant's five story building as follows:

Land in R0, R1, R2, OS is located	Lower height shall apply
Between northwest and northeast	Within 200 feet
Easterly, between northeast and southeast, or westerly between northwest and southwest	Within 150 feet
Southerly, between southeast and southwest	Within 100 feet

It is the Applicants' position that the impact of the proposed five story building on residential zoning districts near the B4 zone where the 10 Sunnyside property is located would not be significant when the aforementioned zoning calculations are compared and contrasted with the aerial Google shown distances of the B4 Sunnyside Ave zone from those residential zoning districts and when viewed in the context of its plans.

The site will also include an indoor parking garage and surface parking to accommodate a total of 21 vehicle parking spaces and 34 bicycle spaces.

Access to the site will remain as existing; one curb cut off of Sunnyside Ave.

The site is bounded by a commercial property to the north, marijuana dispensary to the south, Sunnyside Ave to the east and a commercial parking lot to the west.

The lot contains 16,500 square feet of land area and the proposed development will transform a prior automobile use from a blighted site and the proposal is in line with the definition of a B4 zone as defined in Section 5.5.1 further subsection E of the Zoning Bylaw which provides as follows:

“B4: Vehicular Oriented Business District. The Vehicular Oriented Business District provides for establishments that are primarily oriented to automotive traffic, which means they require large amounts of land in proportion to building coverage. This district also consists of establishments devoted to the sale or servicing of motor vehicles, the sale of vehicular parts and accessories, and service station-Arlington has an

abundance of automotive and automotive accessory sales and service establishments. As these businesses gradually close, the Town has encouraged conversion of the property to other retail, service, office, or residential use, particularly as part of mixed-use development.”

As can be seen from the last sentence of the B4 definition, the Town has encouraged conversion of prior automotive uses to other retail, service, office, or residential use particularly as part of a mixed-use development. That objective is exactly what the Applicant’s proposal entails.

The property has 150.2 feet of frontage on Sunnyside Ave. and the proposed Floor Area Ratio (FAR) would be 1.5 while Zoning requires an FAR of 1.5.

The front yard depth is presently 4 feet, 2 inches and would remain at 4 feet, 2 inches while the side yard depth which on the right side which is currently 71 feet will be reduced to 4 feet, 11.5 inches and the left side which is currently 1 foot will continue at 1 foot.

With respect to both side yards there is no minimum zoning requirement.

The rear yard depth which is currently 0 will be enhanced to 16 feet 6¾ inches, while the zoning requirement is 16 feet, 6 inches.

The height of the building which is currently 15 feet will change to 49 feet while zoning allows a height of 60 feet and the number of stories will be 5 and zoning allows 5 stories in the B4 zone.

The proposed landscaped square feet would be 1,780 square feet and the proposed usable open square feet would be 2,643 square feet.

There will be 21 parking spaces while zoning would require 20 spaces.

The bicycle parking would be both long-term inside and short-term outside the building.

The proposed development of the 10 Sunnyside Avenue property is a unique opportunity to do both an adaptive re-use and ground up construction project.

The current garage and adjacent empty lot located on the end of Sunnyside nearest to Broadway has sat empty for quite some time. The Applicant saw this lot as an opportunity to revitalize a portion of Arlington that has long been dedicated to industrial uses. The proposed development will be a sustainable development using many “Green” features that will benefit both the office and residential aspects of the project.

The existing garage will remain intact except for the portion that housed the ramp to the basement. That will be removed. The garage itself will now house meeting space, storage space and on occasion office use for Column Health's management team. As part of this a new 1,800 square foot greenhouse is proposed for the roof of the current garage. A re-purposed shipping container will house the new café area for employees, while the existing garage roof will be covered in solar panels. The former garage was not accessible for visitors with disabilities. The proposed rehab will also include a new elevator as well as accessible toilets and an accessible route in and out of the building.

Adjacent to the garage will be a full service 5-unit condominium building. Concierge service will be provided for the Column Health team members who live in the building. This will allow tenants to utilize the car stackers within the garage without having to operate the lifts themselves. This garage is accessed via a common drive aisle that splits the office portion from the residential, allowing Fire Department access to two sides of the building. Given the properties adjacency to the bike trail, alternative transportation is an

important part of this project. A large tenant bike room is provided as well as additional bike parking in the rear of the site next to the large open green space that has been created. The building itself is a contemporary design which will be comprised mostly of Steel and Concrete, while being clad in cementitious and metal panels along with a corten steel that has been allowed to patina to a rust-colored tone. Each of the 5 dwelling units are large in size, ranging from 898 square feet to 3,982 square feet for an average of 2,355 square feet per unit. All units have expansive outdoor space with a mix of terraces, balconies, and roof decks.

Sustainability is an important aspect of this development. As previously mentioned, solar will be utilized, as well as geo-thermal heating and cooling, energy efficient windows, sustainable interior products, sedum roof installation, and roof overhangs which help to aid in the heating & cooling needs for the building. In addition, the large greenhouse is intended to help grow plants and food for the residents and workers.

A stormwater management report has been prepared by EBI Consulting and is part of the Applicant's submittal to the Board and that report indicates that the site lies within the Alewife Brook Watershed but is not located within the 100-year flood plain and is not located within a flood zone as shown on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for the Town of Arlington, Map# 25017C0419E, dated June 4, 2010 shown as Exhibit 3 in the stormwater management report.

The report also indicates that there are no known wetland resource areas or associated buffers located on the site.

The substance of the report also indicates that the proposed site layout will direct water runoff to drainage structures within the paved driveway with the result that there will be a decrease in impervious areas and the report also indicates that the onsite closed pipe drainage system has been designed for the 25-year storm event in accordance with Town of Arlington requirements. Details with respect to the sizing of the drainage pipes are set forth in the paragraph entitled “Hydraulic Analysis” on Page 5 of 11 of the report.

The conclusion on the part of representatives of EDI Consulting is that “the redevelopment project will result in an improvement of stormwater runoff, quality and quantity”.

The traffic study of Nitsch Engineering dated December 22, 2020 indicates in part that 3 intersections, Alewife Brook Parkway, Broadway, and Sunnyside Ave., 1 signalized and 2 unsignalized were studied to establish the impact the proposal would have on intersection traffic operations.

The crash data over the last three years available from MassDOT indicates that the intersection of Alewife Brook Parkway and Broadway was found to have a motor vehicle crash rate above the MassDOT average for the District in which the Project is located (District 4). No fatalities *were* reported at any of the study area intersections over the five-year period reviewed. In addition, the Highway Safety Improvement Program (HSIP) database was reviewed. The intersection of Alewife Brook Parkway and Broadway is listed as a HSIP cluster in the most recent (2015-2017) HSIP cluster listing. The Broadway at Sunnyside Avenue intersection is not listed as a HSIP location and has a crash rate below the MassDOT average.

The substance of the report indicates the following: “We collected turning movement counts at the three study intersections. We adjusted the counts

upward to account for the COVID-19 pandemic's effect on traffic patterns to become our baseline Existing conditions traffic volumes.”

For future conditions, we projected the Existing conditions traffic volumes over a seven-year period to the horizon year 2027 using an annual growth rate of 2.0% based on expected regional growth to become our future No-Build conditions volumes. We estimated the quantity of vehicle trips the proposed development would generate based on the Institute of Transportation Engineers (ITE) *Trip Generation, 10th Edition* criteria.”

The report further indicates: “We performed a vehicle capacity analysis to compare the weekday morning and weekday evening peak hours of the 2020 Existing conditions, 2027 No-Build conditions, and 2027 Build conditions for each of the three study intersections. Under all conditions, the intersection of Alewife Brook Parkway and Broadway will operate poorly with most of the movements operating at LOS F. However, all movements for both intersections in Build condition will continue to operate at No-Build conditions with only minor increases in delay and queuing. The intersection of Sunnyside Avenue and the site driveway will operate at LOS A for all movements.”

The traffic study concludes: “As the project is not anticipated to have a significant impact to traffic operations at the study intersections, no mitigation is recommended at this time.”

This project is intended to be something unique for Arlington, but also act as a catalyst for future developments in the immediate area of Sunnyside Avenue. The Applicant looks forward to presenting the proposed development to the Town and working together toward a successful development at the site which as stated previously will remove a blighted property from the

neighborhood and replace it with an attractive alternative and remove an automobile use which is encouraged by the provisions of Section 5.5.1, further Section B4.



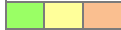
LEED v4 for Building Design and Construction: Multifamily Midrise

Project Checklist

Project Name: 10 Sunnyside Avenue Residence and Office

Date: 01/07/2021

Y ? N



Credit Integrative Process

2

4 3 8 Location and Transportation 15

Y Prereq Floodplain Avoidance Required

PERFORMANCE PATH

Credit LEED for Neighborhood Development Location 15

PRESCRIPTIVE PATH

Credit 8 Site Selection 8

Credit 3 Compact Development 3

Credit 2 Community Resources 2

Credit 2 Access to Transit 2

0 5 0 Sustainable Sites 7

Y Prereq Construction Activity Pollution Prevention Required

Y Prereq No Invasive Plants Required

Credit 2 Heat Island Reduction 2

Credit 3 Rainwater Management 3

Credit 2 Non-Toxic Pest Control 2

4 6 0 Water Efficiency 12

Y Prereq Water Metering Required

PERFORMANCE PATH

Credit Total Water Use 12

PRESCRIPTIVE PATH

Credit 6 Indoor Water Use 6

Credit 4 Outdoor Water Use 4

37 0 0 Energy and Atmosphere 37

Y Prereq Minimum Energy Performance Required

Y Prereq Energy Metering Required

Y Prereq Education of the Homeowner, Tenant or Building Manager Required

Credit 30 Annual Energy Use 30

Credit 5 Efficient Hot Water Distribution 5

Credit 2 Advanced Utility Tracking 2

9 0 0 Materials and Resources 9

Y Prereq Certified Tropical Wood Required

Y Prereq Durability Management Required

Credit 1 Durability Management Verification 1

Credit 5 Environmentally Preferable Products 5

Credit 3 Construction Waste Management 3

16 3 0 Indoor Environmental Quality 18

Y Prereq Ventilation Required

Y Prereq Combustion Venting Required

Y Prereq Garage Pollutant Protection Required

Y Prereq Radon-Resistant Construction Required

Y Prereq Air Filtering Required

Y Prereq Environmental Tobacco Smoke Required

Y Prereq Compartmentalization Required

Credit 3 Enhanced Ventilation 3

Credit 2 Contaminant Control 2

Credit 3 Balancing of Heating and Cooling Distribution Systems 3

Credit 3 Enhanced Compartmentalization 3

Credit 2 Enhanced Combustion Venting 2

Credit 1 Enhanced Garage Pollutant Protection 1

Credit 3 Low Emitting Products 3

Credit 1 No Environmental Tobacco Smoke 1

5 0 0 Innovation 6

Y Prereq Preliminary Rating Required

Credit 5 Innovation 5

Credit LEED AP Homes 1

0 0 0 Regional Priority 4

Credit Regional Priority: Specific Credit 1

Credit Regional Priority: Specific Credit 1

Credit Regional Priority: Specific Credit 1

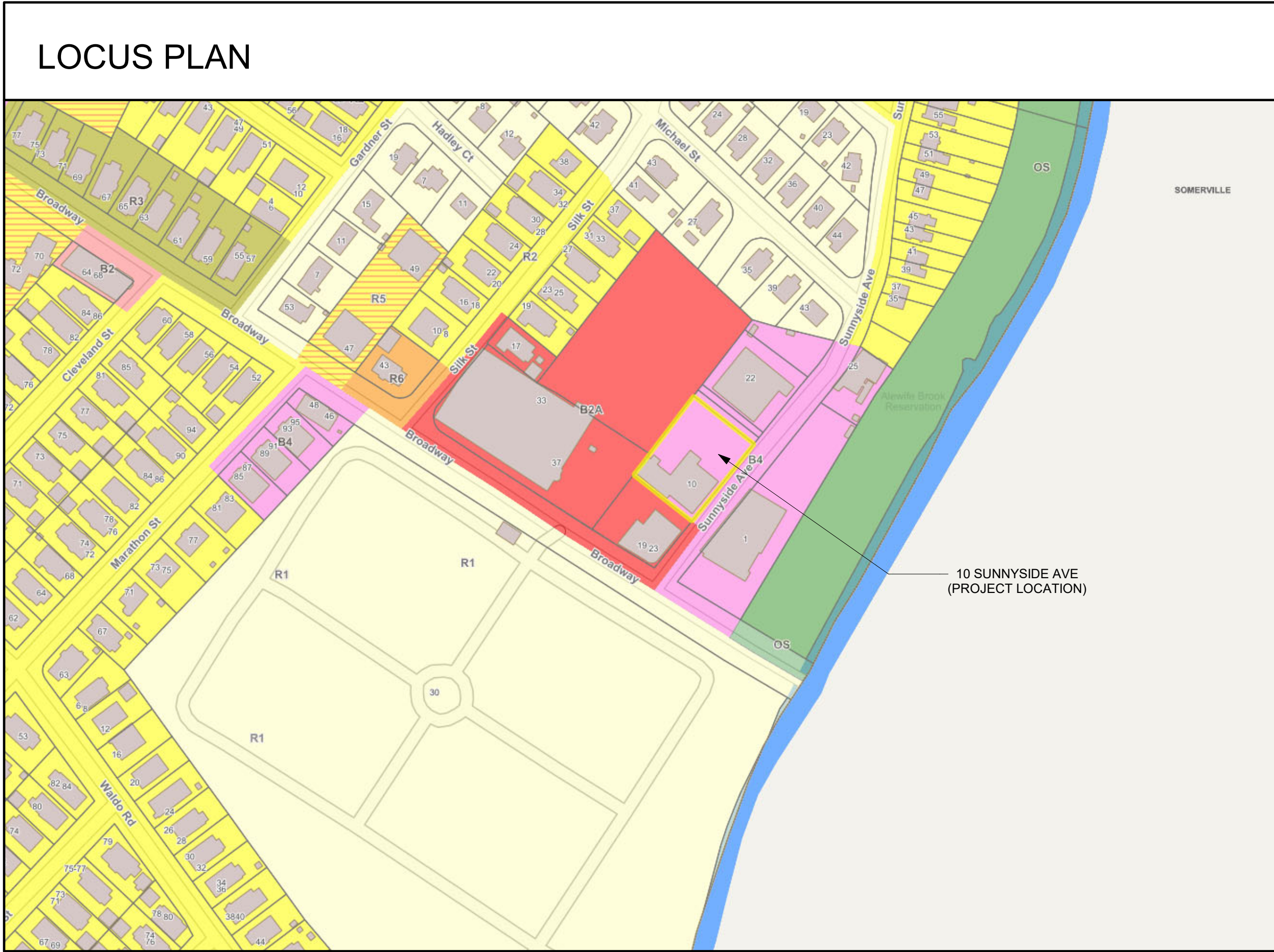
Credit Regional Priority: Specific Credit 1

75 17 8 TOTALS Possible Points: 110

Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 110



SUBMISSION TO TOWN OF ARLINGTON
12-08-2020



PROJECT:
COLUMN HEALTH OFFICES
& RESIDENTS

PROJECT ADDRESS:
10 SUNNYSIDE AVENUE
ARLINGTON MASSACHUSETTS

ARCHITECT
KHALSA DESIGN INC.
17 IVALOO STREET, SUITE 400
SOMERVILLE, MA 02143
617-591-8682

CLIENT
COLUMN HEALTH LLC
339 MASSACHUSETTS AVE
ARLINGTON, MA 02474
617-539-6780

Architectural Drawing List		
Sheet Number	Sheet Name	Sheet Issue Date
A-000	Cover Sheet	1 2/08/20
SV-1	Existing Conditions Plan	1 2/07/20
C-1	Civil Title Sheet	1 2/07/20
C-2	Legend and General Notes	1 2/07/20
C-3	Layout & Materials Plan	1 2/07/20
C-4	Grading & Drainage Plan	1 2/07/20
C-5	Utilities Plan	1 2/07/20
C-6	Erosion Control & Sedimentation Plan	1 2/07/20
C-7	Site Details 1	1 2/07/20
C-8	Site Details 2	1 2/07/20
A-020	Architectural Site Plan	1 2/08/20
A-021	Apartments Gross Area Plan	1 2/08/20
A-022	Offices Gross Area Plan	1 2/08/20
A-101	Residential - First Floor Plan	1 2/08/20
A-102	Residential - Second Floor Plan	1 2/08/20
A-103	Residential - Third Floor Plan	1 2/08/20
A-104	Residential - Fourth Floor Plan	1 2/08/20
A-105	Residential - Roof Deck Floor Plan	1 2/08/20
A-106	Commercial - Basement Floor Plan	1 2/08/20
A-109	Commercial - Green House / Cafe Floor Plan	1 2/08/20
A-110	Commercial - Roof Deck Floor Plan	1 2/08/20
A-300	Residential -Front Elevation	1 2/08/20
A-301	Residential - Rear Elevation	1 2/08/20
A-302	Residential - Left Side Elevation	1 2/08/20
A-303	Residential - Right Side Elevation	1 2/08/20
A-304	Commercial - Front & Rear Elevations	1 2/08/20
A-305	Commercial - Left & Right Elevations	1 2/08/20
A-306	Perspectives #1	1 2/08/20
A-307	Perspectives #2	1 2/08/20
A-308	Realistic Rendering	1 2/08/20
A-309	Realistic Rendering	1 2/08/20
A-310	Realistic Perspectives	1 2/08/20

PROJECT NAME
10 SUNNYSIDE
AVE

PROJECT ADDRESS
10 Sunnyside Ave
Arlington MA

CLIENT

Column Health LLC

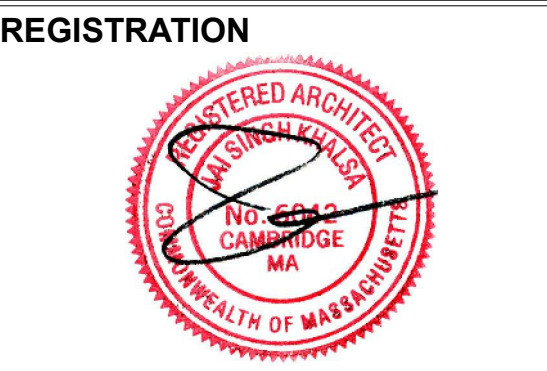
ARCHITECT

KHALSA

17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143
TELEPHONE: 617-591-8682 FAX:
617-591-2086

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Project number	19119
Date	12-08-20
Drawn by	MB
Checked by	WC
Scale	

REVISIONS		
No.	Description	Date














Cover Sheet

A-000

10 SUNNYSIDE AVE

UTILITY NOTE

THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY AND ARE BASED UPON A FIELD SURVEY AND A COMPILATION OF AVAILABLE PLANS OF RECORD FROM THE VARIOUS UTILITY COMPANIES. THE INFORMATION PROVIDED IS FOR THE USE OF THE CONTRACTOR. NEITHER WARRANTY NOR GUARANTEE OF THE INFORMATION IS PROVIDED. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES BY CONTACTING THE RESPECTIVE UTILITY COMPANIES AND "DIG-SAFE" (1-888-344-7233) PRIOR TO CONSTRUCTION.

LEGEND	
 SBH	STONE BOUND DRILL HOLE
 GM	GAS METER
 GG	GAS GATE
 WG	WATER GATE
	UTILITY POLE
	SEWER MANHOLE
	DRAIN MANHOLE
	WATER MANHOLE
 MH	MANHOLE
	MONITORING WELL
 B-1	SOIL BORING
LS	LANDSCAPING
R/W	RETAINING WALL
BB	BITUMINOUS BERM
BT CONC.	BITUMINOUS CONCRETE
CONC.	CONCRETE
CPD	CONCRETE PAD
GC	GRANITE CURB
EOP	EDGE OF PAVEMENT
PVC	POLYVINYL CHLORIDE
PL	PLASTIC
R	RIM
I	INVERT
CLF	CHAIN LINK FENCE
 OHW	OVERHEAD WIRES
 OHW	PROPERTY LINE

PLAN REFERENCES
1. BOOK 3202, PAGE END
2. BOOK 2637, PAGE 301
3. PLAN NO. 1177 OF 1946
4. PLAN NO. 415 OF 1947
5. PLAN NO. 345 OF 1957
6. PLAN NO. 723 OF 1955

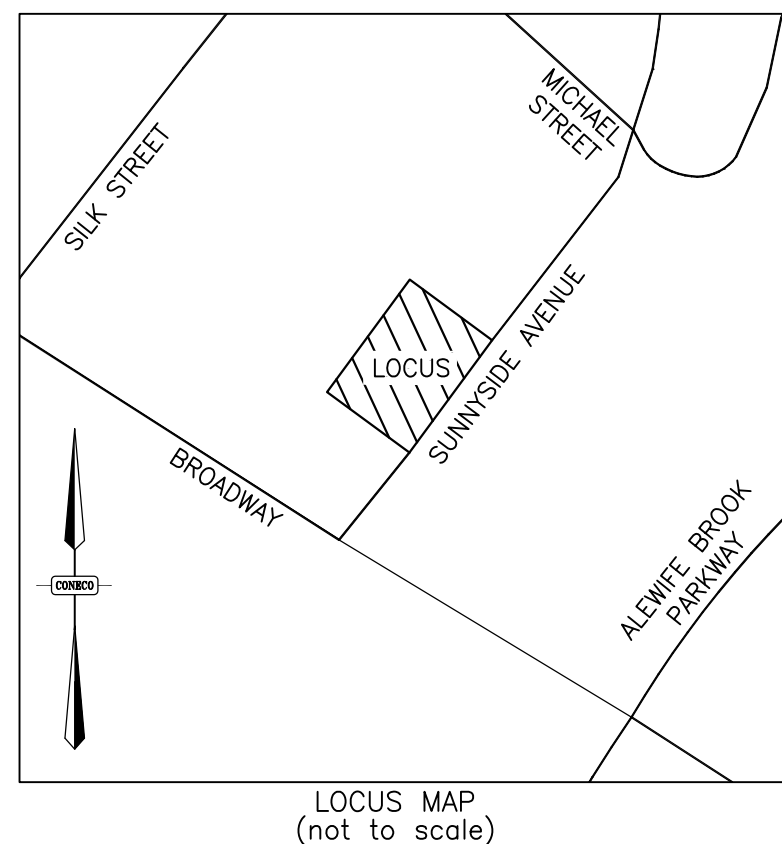
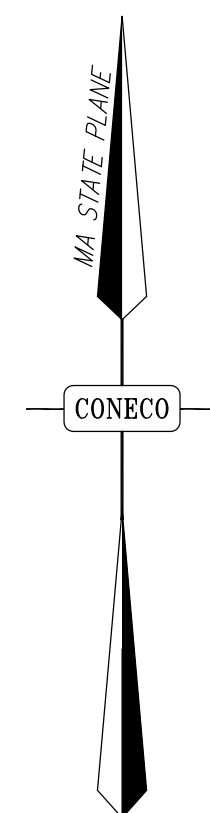
□ SBH	STONE BOUND DRILL HOLE
○ GAS	GAS METER
○ GG	GAS GATE
○ WG	WATER GATE
○ —	UTILITY POLE
⊙	SEWER MANHOLE
⊙	DRAIN MANHOLE
⊙	WATER MANHOLE
○ MH	MANHOLE
	MONITORING WELL
⊙ BS-1	SOIL BORING
LS	LANDSCAPING
R/W	RETAINING WALL
BB	BITUMINOUS BERM
BIT. CONC.	BITUMINOUS CONCRETE
CONC.	CONCRETE
CPG	CONCRETE PAD
GC	GRANITE CURB
EGP	EDGE OF PAVEMENT
PVC	POLYVINYL CHLORIDE
PL	PLASTIC
R	RIM
	INVERT
CLF ———— X	CHAIN LINK FENCE
——— OHW ——— OHW ———	OVERHEAD WIRES
—————	PROPERTY LINE

Zoning District: "B4" Vehicular Oriented Business District

NOTES:

1. VERTICAL DATUM: NAVD 88.
2. LOCUS PROPERTY IS IN ZONE X AS SHOWN ON FLOOD INSURANCE RATE MAP NUMBER 25017C0417E DATED JUNE 4, 2010.

I CERTIFY THAT THIS SURVEY AND PLAN CONFORMS TO THE ETHICAL, PROCEDURAL, AND TECHNICAL STANDARDS FOR THE PRACTICE OF LAND SURVEYING IN THE COMMONWEALTH OF MASSACHUSETTS.

[illegible]

LOCUS MAP
(not to scale)

OWNER OF RECORD:
MB REALTY GROUP LLC
PARCEL ID: 33-2-2.B
BOOK 73883, PAGE 259

10 SUNNYSIDE AVENUE
ARLINGTON, MA

EBI CONSULTING

JOB NO.

11157



NO.	DATE	DESCRIPTION	BY
REVISIONS			

Issued For: Local Approvals
Date Issued: December 7, 2020

SHEET NO.	SHEET TITLE	LATEST ISSUE
Sv-1	Existing Conditions Plan	6/12/2015



Source: MassGIS

Column Health LLC
339 Massachusetts Avenue
Arlington, MA 02474
Tel: 617-539-6780
www.coneco.com

Map #033.0, Lot #0002.B

 **EBI Consulting**
environmental | engineering | due diligence

2 Battermarch Park, Suite 100
Quincy, MA 02169
Tel: 781-273-2500
www.ebiconsulting.com

Khalsa
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Somerville, MA 02143
Tel: (617) 591-8682

Coneco Engineers & Scientists
4 First Street
Bridgewater, MA 02324
Tel: 508-697-3191
www.coneco.com



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Quincy, MA 02169
Tel: 781.273.2500
www.ebiconsulting.com



PREPARED FOR:

Column Health LLC
Colin Beatty
339 Massachusetts Ave
Arlington, MA 02474
Tel: (617) 539-6780
cbeatty@columnhealth.com

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SUBMITTALS

[illegible]

DATE:
December 7, 2020

PROJECT NUMBER:
1620000049

PROJECT TITLE:

Column Health
Offices & Residences

10 Sunnyside Avenue
Arlington, MA 02474
Middlesex County

ISSUED FOR:
Local Approvals
(Not Approved for Construction)

SHEET TITLE:

Title Sheet

SCALE:
N.T.S.

DESIGNED BY:
RLB

CHECKED BY:
MFC

SHEET NO: _____

C-1

1 OF 8



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SUBMITTALS

[illegible]

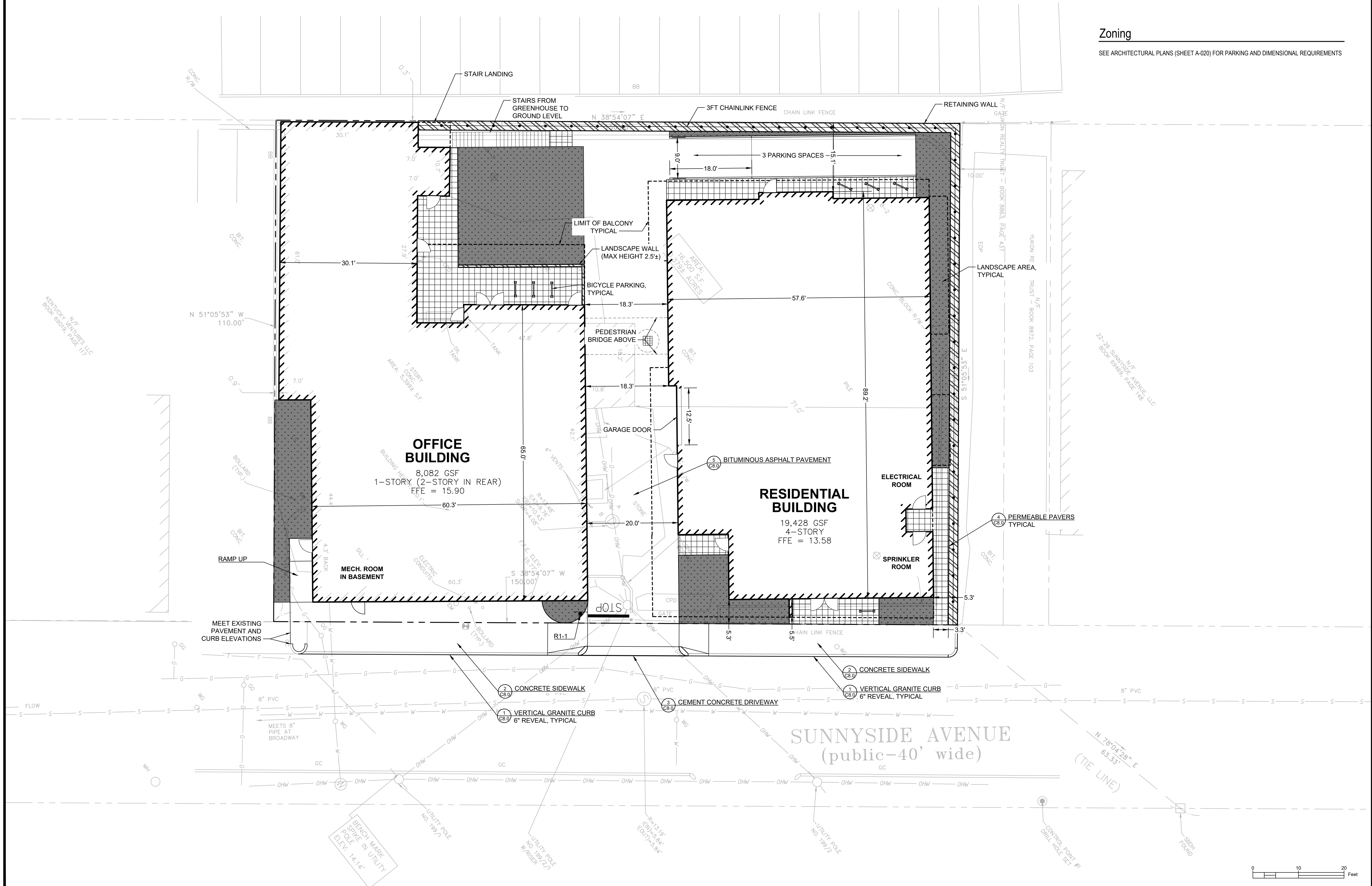
PROJECT TITLE:
Column Health
Offices & Residences

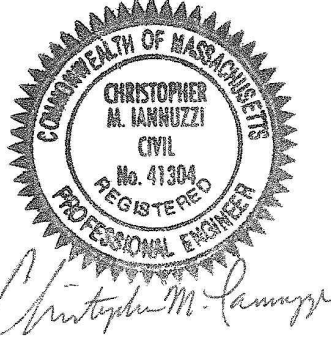
SHEET TITLE:

SHEET NO: _____

C-3

OF 8





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DATE: December 7, 2020	PROJECT NUMBER: 1620000049
---------------------------	-------------------------------

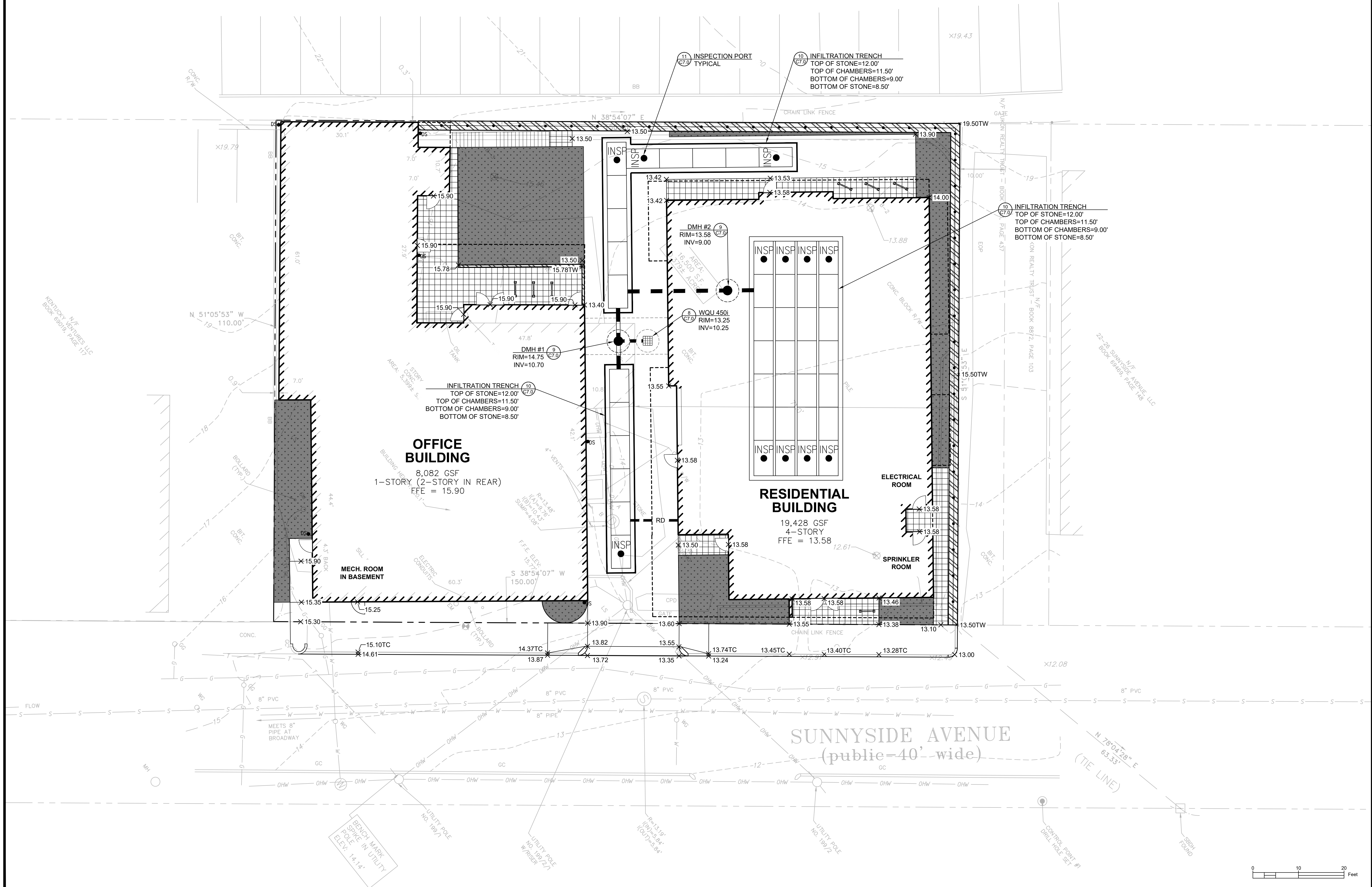
10 Sunnyside Avenue
Arlington, MA 02474
Middlesex County

SHEET TITLE:
**Grading, Drainage, &
Erosion Control Plan**

SHEET NO:

C-4

OF 8



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SUBMITTALS

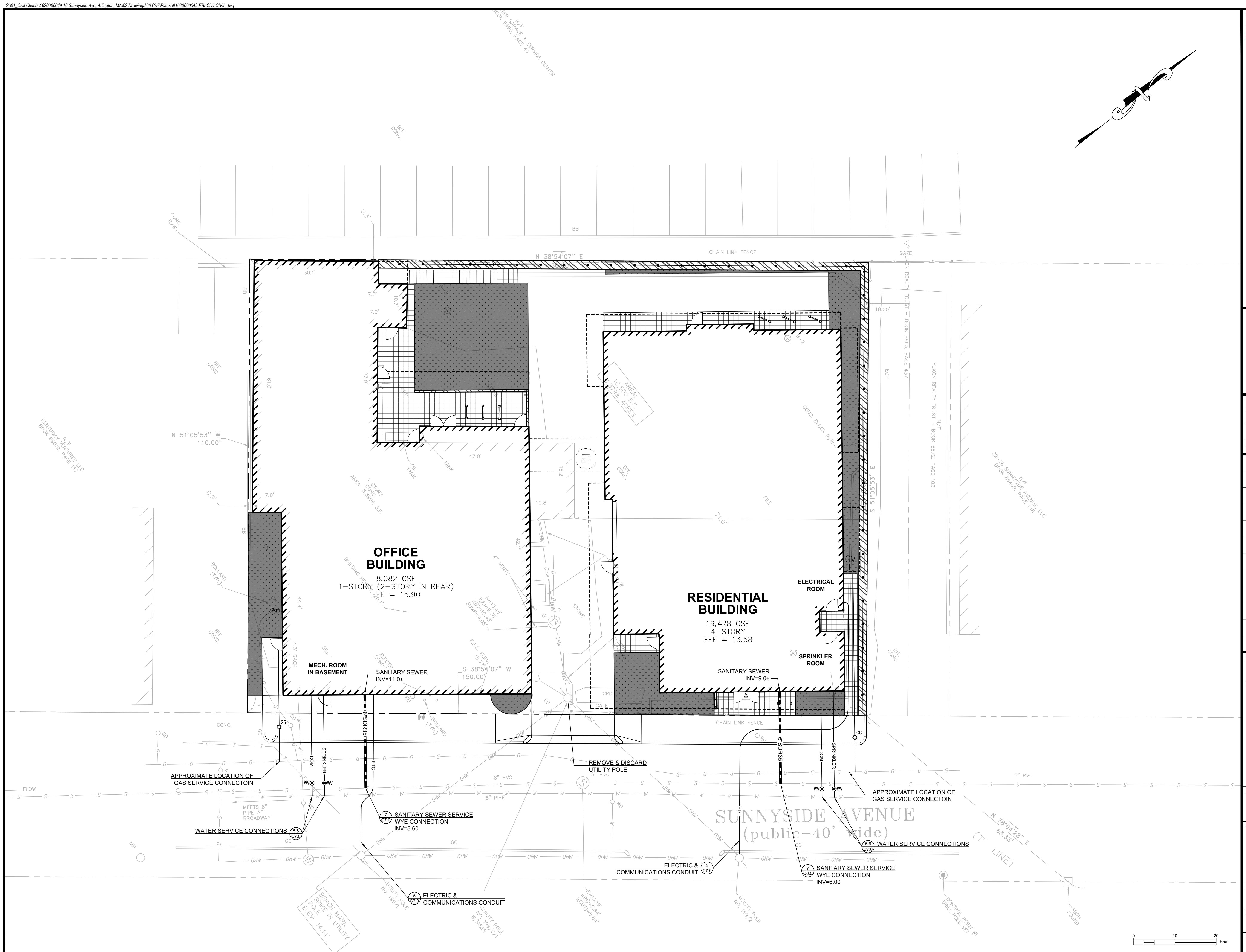
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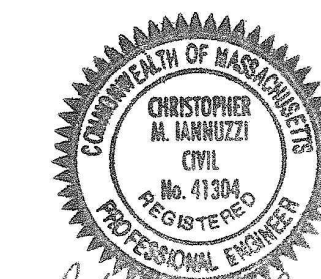
PROJECT NUMBER:
1620000049

SHEET TITLE:

C-5

OF 8





PREPARED FOR:

Column Health LLC
Colin Beatty
339 Massachusetts Ave
Arlington, MA 02474
Tel: (617) 539-6780
cbeatty@columnhealth.com

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SUBMITTALS

[illegible]

DATE:
December 7, 2020

PROJECT NUMBER: 1620000049

PROJECT TITLE:

Column Health
Offices & Residences

10 Sunnyside Avenue
Arlington, MA 02474
Middlesex County

ISSUED FOR:
Local Approvals
(Not Approved for Construction)

SHEET TITLE:

Demo and Sedimentation & Erosion Control Plan

SCALE:
1" = 10'

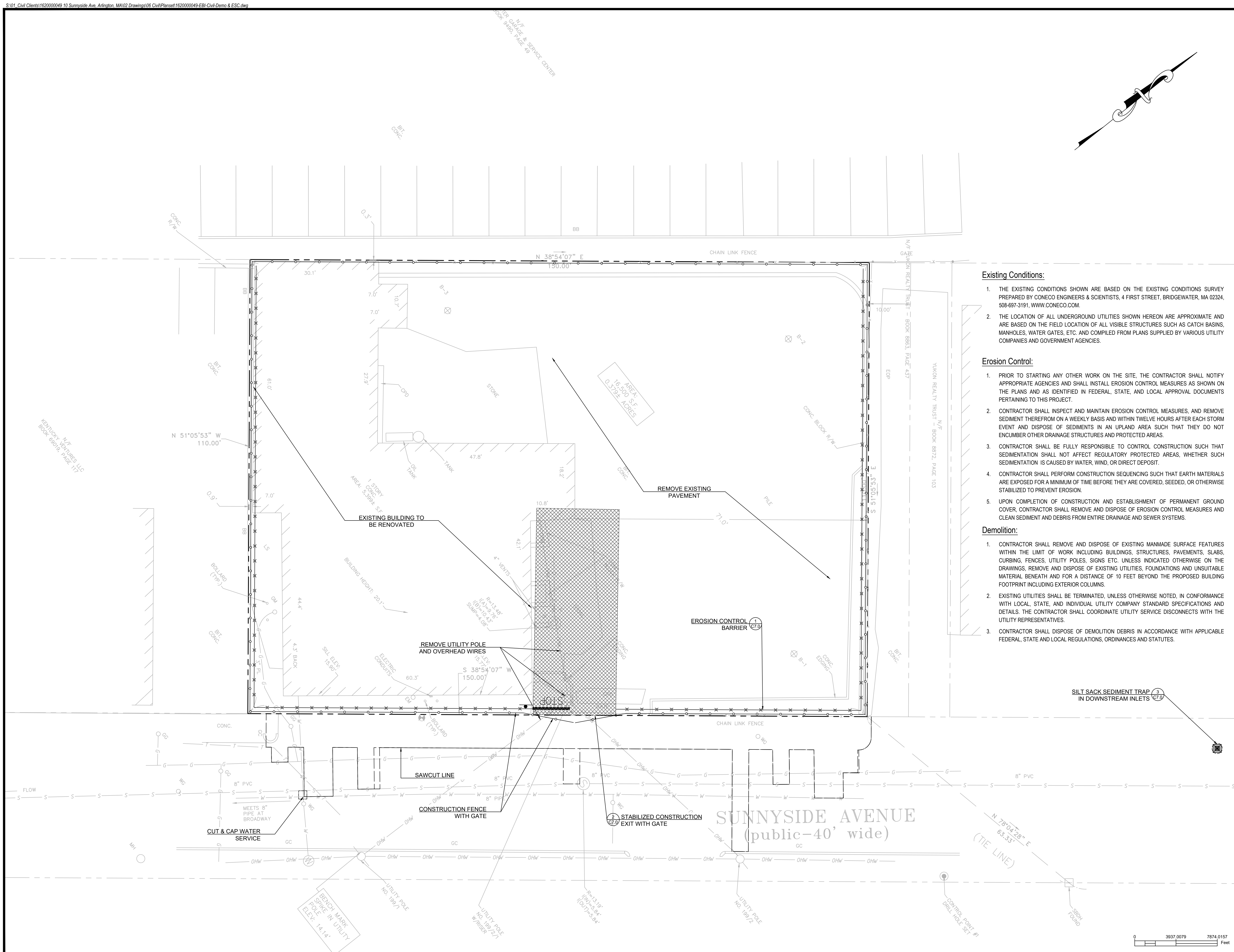
DESIGNED
RLB

CHECKED BY:
MFC

SHEET NO:

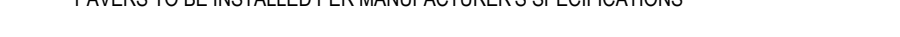
C-6

3 OF 8





6. FOR ACCESSIBLE ROUTES, THE RUNNING SLOPE OF WALKING SURFACES SHALL NOT BE GREATER



NOTE: SUBGRADE



SCALE N.T.S.

1

SCALE N.T.S.

2

SCALE: N.T.S.

3

N.T.S.

5

Standard Duty Flexible Pavement

1. PAVEMENT SECTIONS ARE

1. PAVEMENT SECTIONS ARE SUBJECT TO CHANGE AND WILL BE BASED ON THE

SCALE: N.T.S.

5

[illegible]

DATE: December 7, 2020	PROJECT NUMBER: 1620000049
---------------------------	-------------------------------

PROJECT TITLE:
Column Health
Offices & Residences

10 Sunnyside Avenue
Arlington, MA 02474
Middlesex County

ISSUED FOR:
Local Approvals
(Not Approved for Construction)

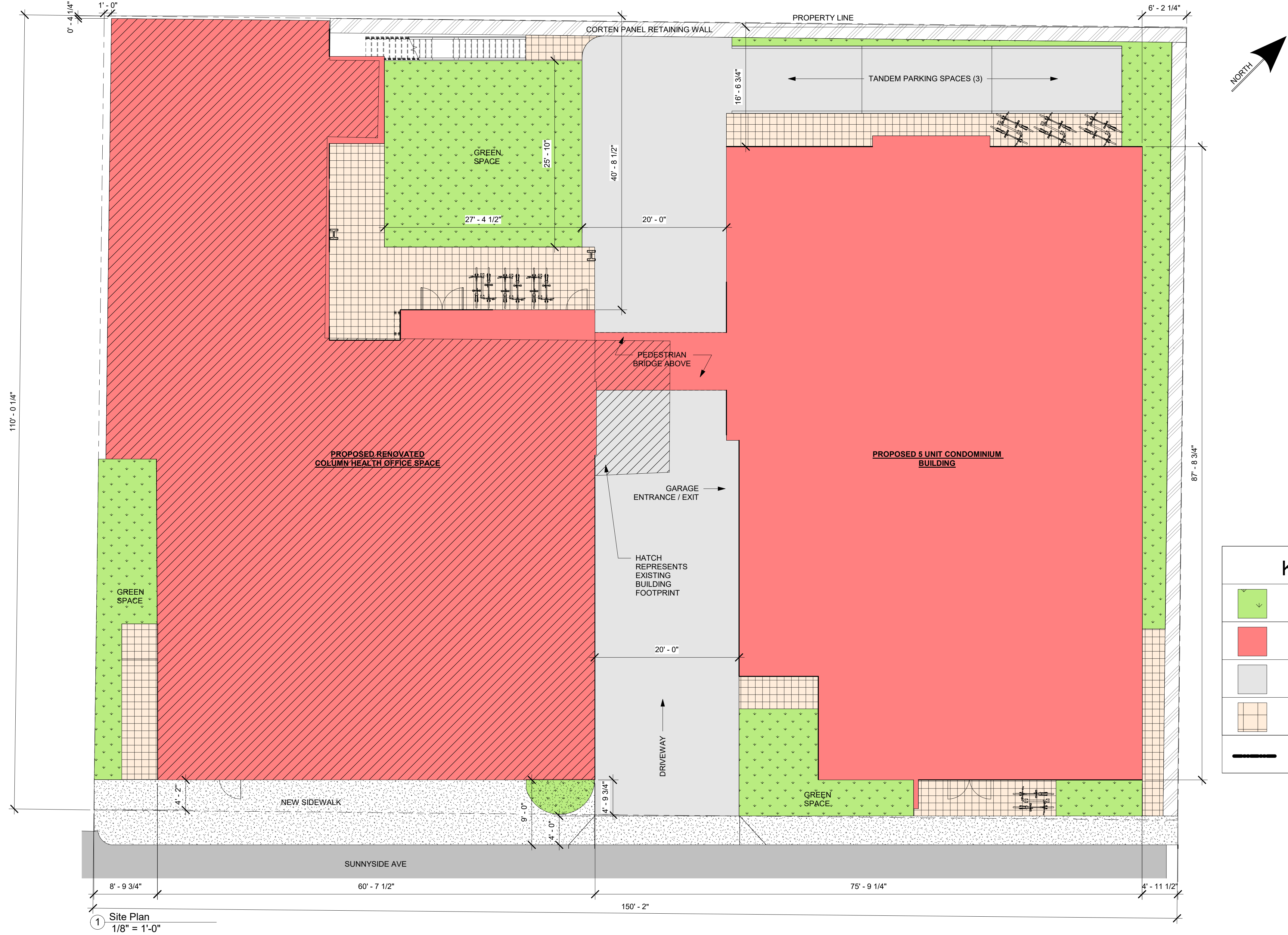
SHEET TITLE:

Site Details 2

SCALE: N.T.S.	SHEET NO:
------------------	-----------

DESIGNED BY: RLB	C-8
---------------------	-----

CHECKED BY:
MFC



1 Site Plan
1/8" = 1'-0"

ZONING DESIGNATION

B4: Vehicular Oriented Business District. The Vehicular Oriented Business District provides for establishments that are primarily oriented to automotive traffic, which means they require large amounts of land in proportion to building coverage. This district also consists of establishments devoted to the sale or servicing of motor vehicles, the sale of vehicular parts and accessories, and service stations. Arlington has an abundance of automotive and automotive accessory sales and service establishments. As these businesses gradually close, the Town has encouraged conversion of the property to other retail, service, office, or residential use, particularly as part of mixed-use development.

DISTRICT USE	MIN LOT AREA SF	MIN LOT AREA PER DU	MIN LOT FRONTAGE
B4			
MIXED USE <= 20,000 SF	N/A	N/A	50'-0" (150'-2" existing)

FRONT YARD (0'-0")	SIDE YARD (0'-0")	REAR YARD (10' +L/10)
VARIES (4'-2" - 5'-0")	1'-0" (L) / 4'-11 1/2" (R)	16'-6 3/4" (CONDO) / (+/- 4" EXISTING GARAGE)

OPEN SPACE N/A	USABLE OPEN SPACE
1,780 SF (10.8%)	1,780 SF @ GRADE / 645 SF GREENHOUSE / 218 SF GREEN ROOF

MAX HEIGHT: 60'-0"	MAX STORIES: 5 STORIES
49'-0" ROOF / 60'-0" TOP OF HEADHOUSE	4 STORIES + PRIVATE ROOF DECK LEVEL

MAXIMUM FLOOR AREA RATIO (FAR) 1.5 - 16,500 x 1.5 = 24,750 SF ADD 5% FAR FOR AVERAGE UNIT SIZE EXCEEDING 1,100 SF (ADDITIONAL 1,237 SF) ADD 2 SF FOR EVERY 1 SF OF OPEN SPACE IN EXCESS OF REQUIREMENT (ADDITIONAL 1,704 SF) TOTAL ALLOWED FAR = 27,691 SF
19,428 SF (CONDO BUILDING) + 8,082 SF (OFFICE BUILDING) = 27,510 SF

PARKING REQUIREMENTS: 2 SPACES PER 3 BED UNIT / 1.5 SPACES FOR 1&2 BED UNIT / 1 SPACE PER 500 SF OF OFFICE SPACE
3 RESIDENTIAL UNITS x 2 SPACES = 6 SPACES + 2 RESIDENTIAL UNITS x 1.5 SPACES = 3 SPACES (TOTAL OF 9 SPACES FOR RESIDENTIAL) 5,145 SF OF OFFICE/ 500 SF = 11 SPACES (20 TOTAL)
21 SPACES PROVIDED

BICYCLE PARKING: 1.5 PER DWELLING UNIT LONG TERM / .10 PER DWELLING UNIT SHORT TERM
8 BIKE SPACES LONG TERM + .5 SHORT TERM = 9 BIKE SPACES (14 SPACES PROVIDED)

BICYCLE PARKING: .30 SPACES PER 1,000 SF LONG TERM / .50 SPACES PER 1,000 SF
8.72 x .30 = 3 BIKE SPACES + 8.72 x .50 = 4 BIKE SPACES (7 TOTAL) (20 SPACES PROVIDED)

5.3.19. REDUCED HEIGHT BUFFER

When two different maximum height limits are specified for the same zoning district in any Table of Dimensional and Density Regulations in this Section 5, the lower limit shall apply to any lot or part of a lot located in a height buffer area unless it is determined as a specific finding of a special permit that the properties in the adjacent R0, R1, R2, or OS district would not be adversely affected due to existing use or topographic condition. A height buffer area is defined as a lot or part of a lot which is located at a lesser distance from any land, not within a public way, in an R0, R1, R2 or OS district than the following:

Land in R0, R1, R2, OS is located	Lower height shall apply
Between northwest and northeast	Within 200 feet
Easterly, between northeast and southeast, or westerly between northwest and southwest	Within 150 feet
Southerly, between southeast and southwest	Within 100 feet

(SEE SHEET A-020.1 FOR LOCUS OF PROPOSED DEVELOPMENT IN RELATION TO (R) PROPERTIES)

PROJECT NAME
10 SUNNYSIDE AVE

PROJECT ADDRESS
10 Sunnyside Ave
Arlington MA

CLIENT

Column Health LLC

ARCHITECT

17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143
TELEPHONE: 617-591-8682 FAX: 617-591-2086

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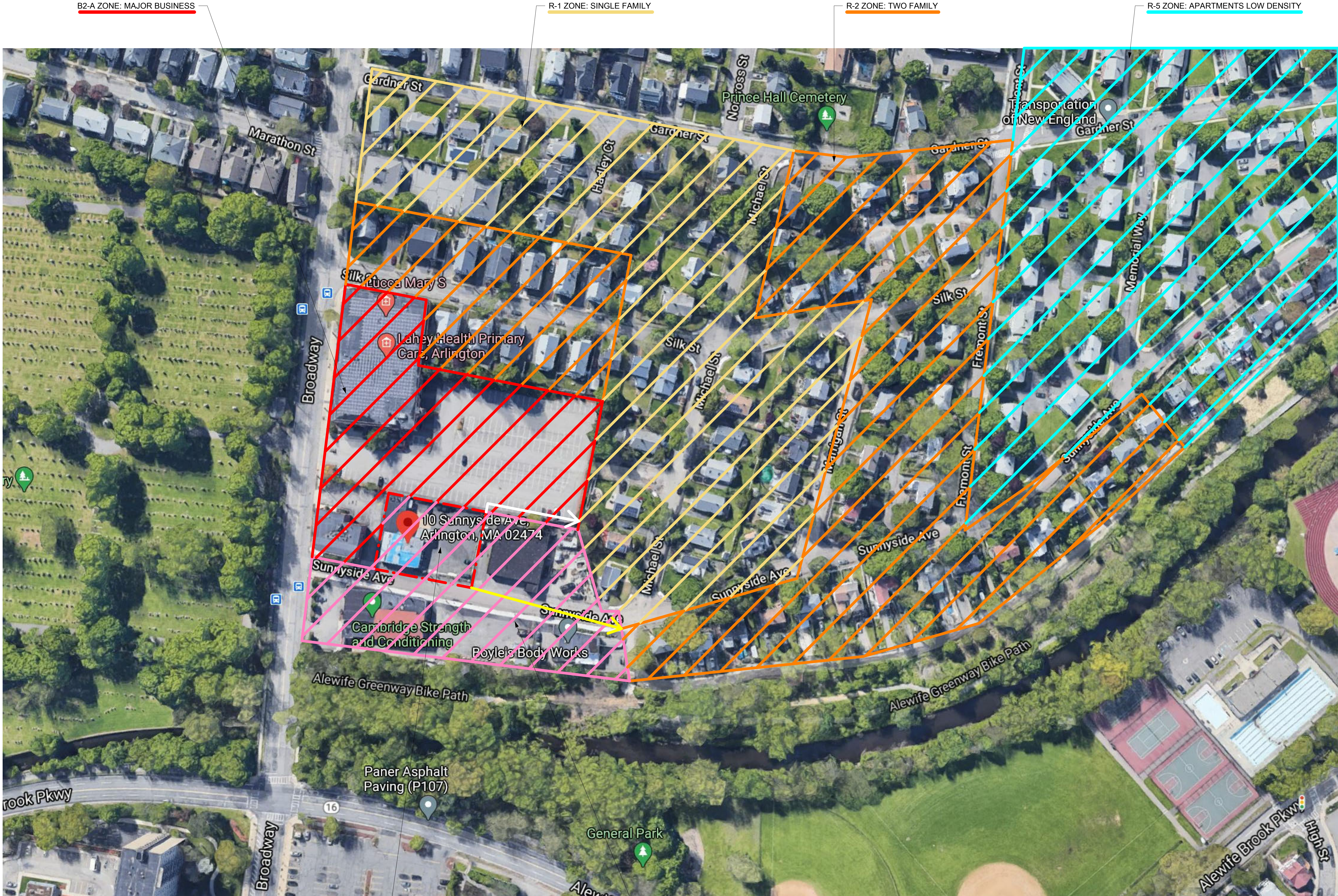
Project number	19119
Date	12-08-20
Drawn by	MB
Checked by	WC
Scale	As indicated

No.	Description	Date

Architectural Site
Plan

A-020

10 SUNNYSIDE AVE



B2-A ZONE: MAJOR BUSINESS

R-1 ZONE: SINGLE FAMILY

R-2 ZONE: TWO FAMILY

R-5 ZONE: APARTMENTS LOW DENSITY

PROJECT NAME

10 SUNNYSIDE AVE

PROJECT ADDRESS

10 Sunnyside Ave
Arlington MA

CLIENT

Column Health LLC

ARCHITECT



KHALSA

17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143
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REGISTRATION



Project number	19119
Date	12-08-20
Drawn by	Author
Checked by	Checker
Scale	1/4" = 1'-0"

REVISIONS

No.	Description	Date

SITE LOCUS &
ZONING

A-020.1

10 SUNNYSIDE AVE

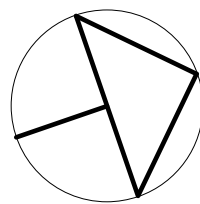
1 LOCUS
1/4" = 1'-0"

PROJECT LOCATION
10 SUNNYSIDE AVENUE

B4 ZONE: VEHICULAR ORIENTED BUSINESS

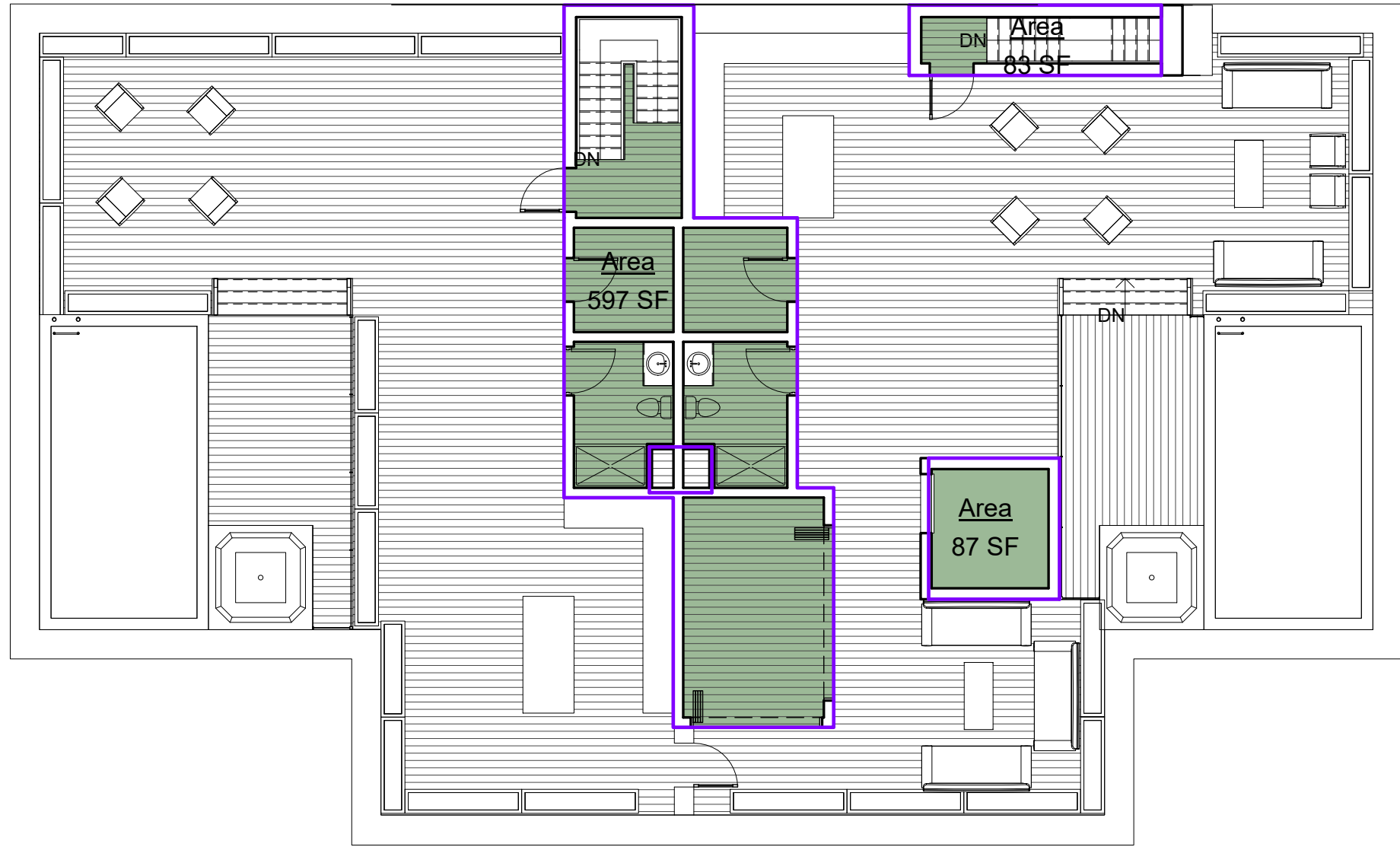
10 SUNNYSIDE IS LOCATED APPROXIMATELY 165'-0" TO THE BEGINNING OF THE R-1 ZONE ON MICHAEL STREET LOOKING NORTH
(DENOTED WITH WHITE LINE & ARROW)

10 SUNNYSIDE IS LOCATED APPROXIMATELY 252'-0" TO THE BEGINNING OF THE R-2 ZONE ON SUNNYSIDE AVENUE LOOKING NORTHEAST
(DENOTED WITH YELLOW LINE & ARROW)



Building Area Legend

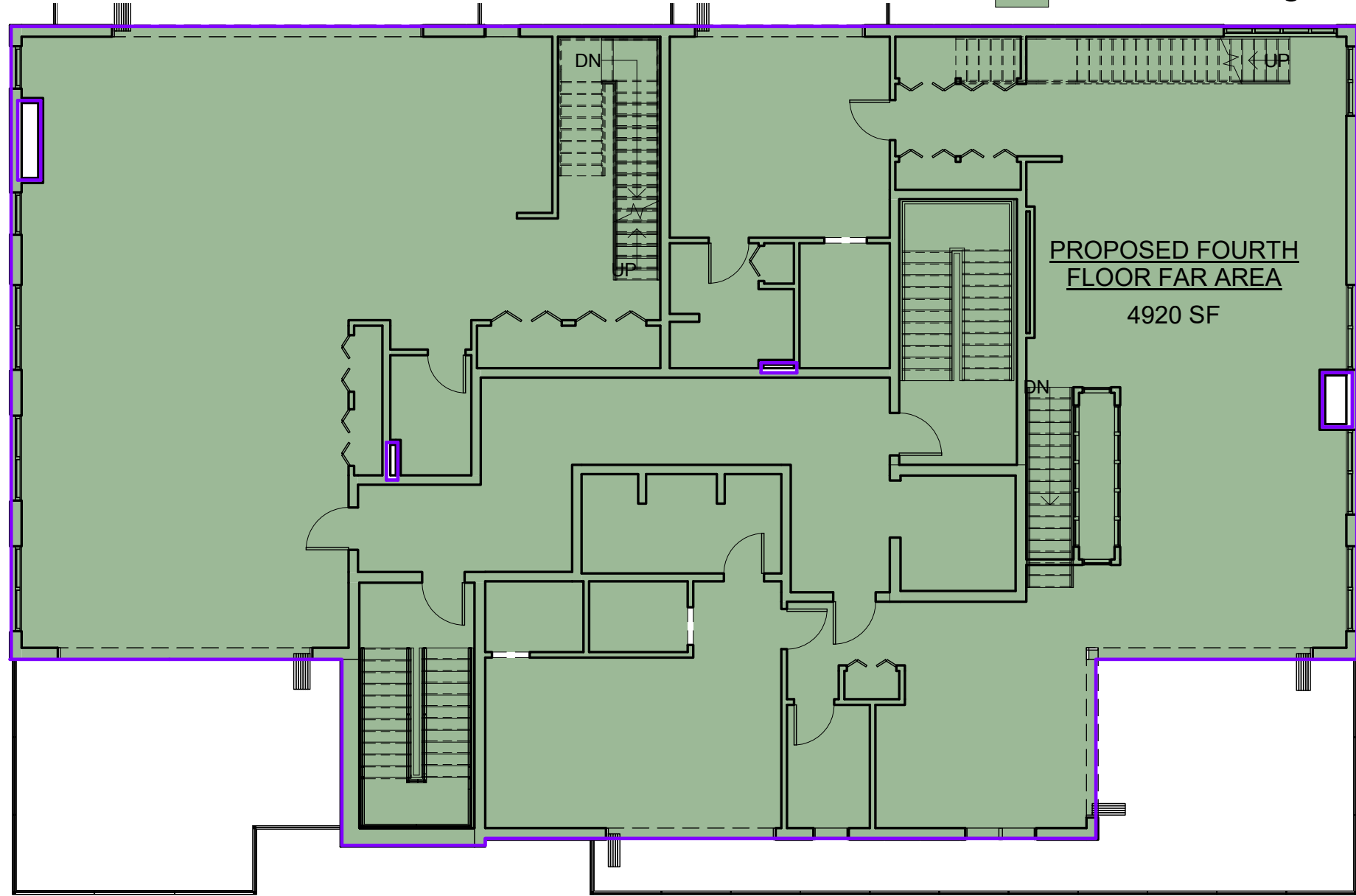
Gross Building Area



5 - Residential Roof Deck Level
1" = 10'-0"

Building Area Legend

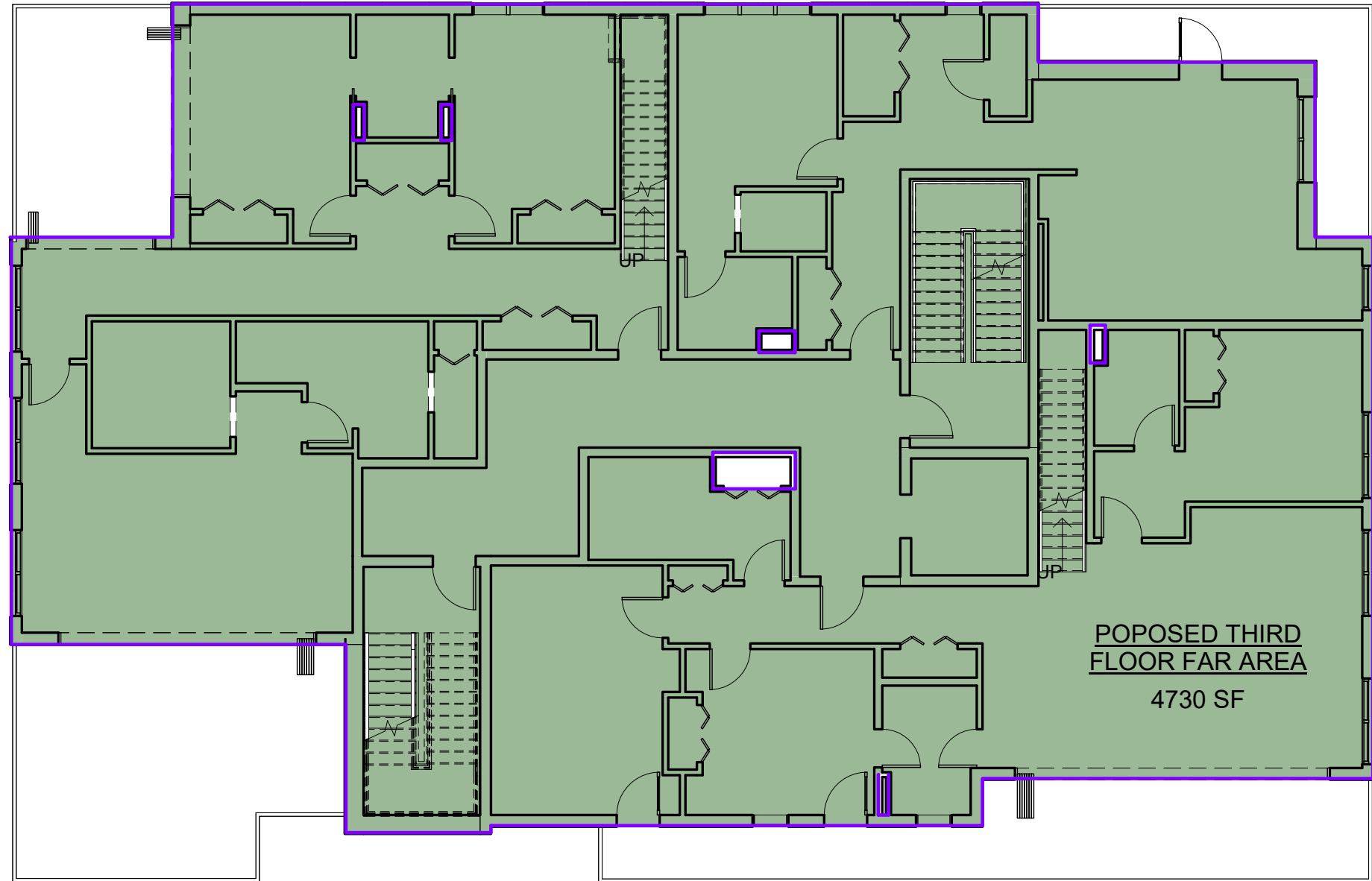
Gross Building Area



4 - Residential 4th Floor Level
1" = 10'-0"

Building Area Legend

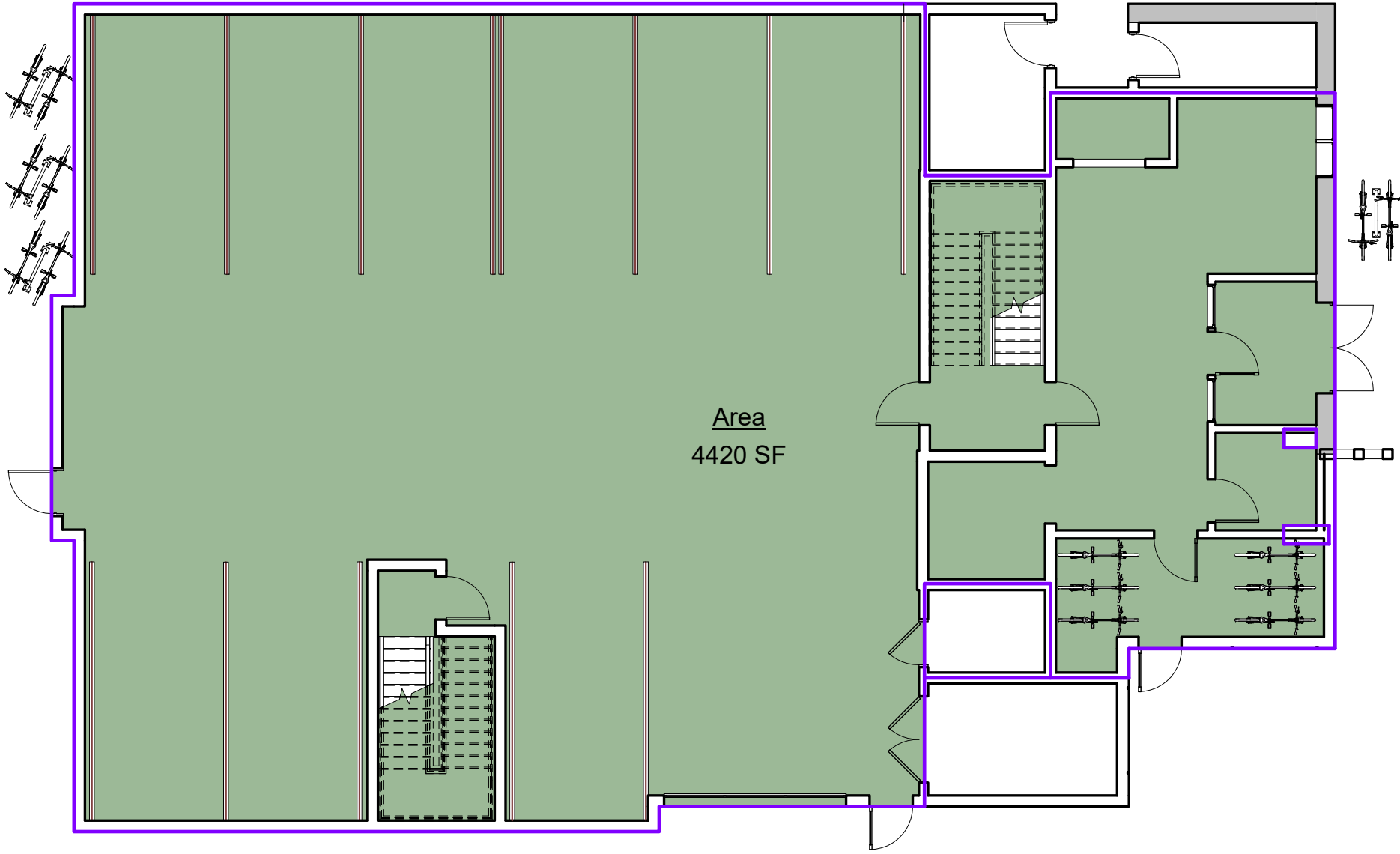
Gross Building Area



3 - Residential 3rd Floor Level
1" = 10'-0"

Building Area Legend

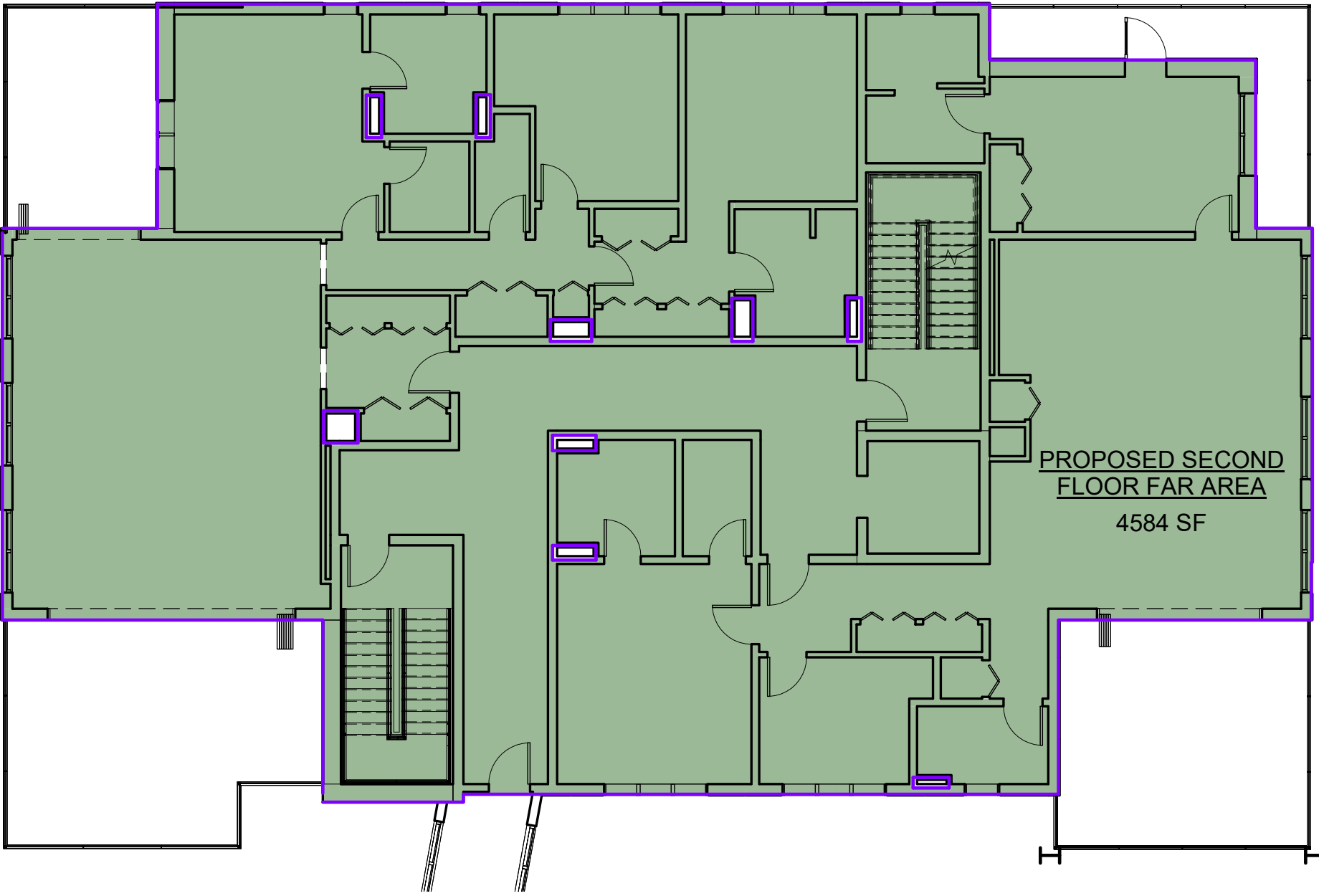
Gross Building Area



1 FIRST FLOOR
1" = 10'-0"

Building Area Legend

Gross Building Area



2 - Residential 2nd Floor Level
1" = 10'-0"

TOTAL BUILDING GROSS SF = 19,428 SF

PROJECT NAME

10 SUNNYSIDE AVE

PROJECT ADDRESS

10 Sunnyside Ave
Arlington MA

CLIENT

Column Health LLC

ARCHITECT



17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143
TELEPHONE: 617-591-8682 FAX:
617-591-2086

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REGISTRATION



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Date	12-08-20
Drawn by	Author
Checked by	Checker
Scale	1" = 10'-0"

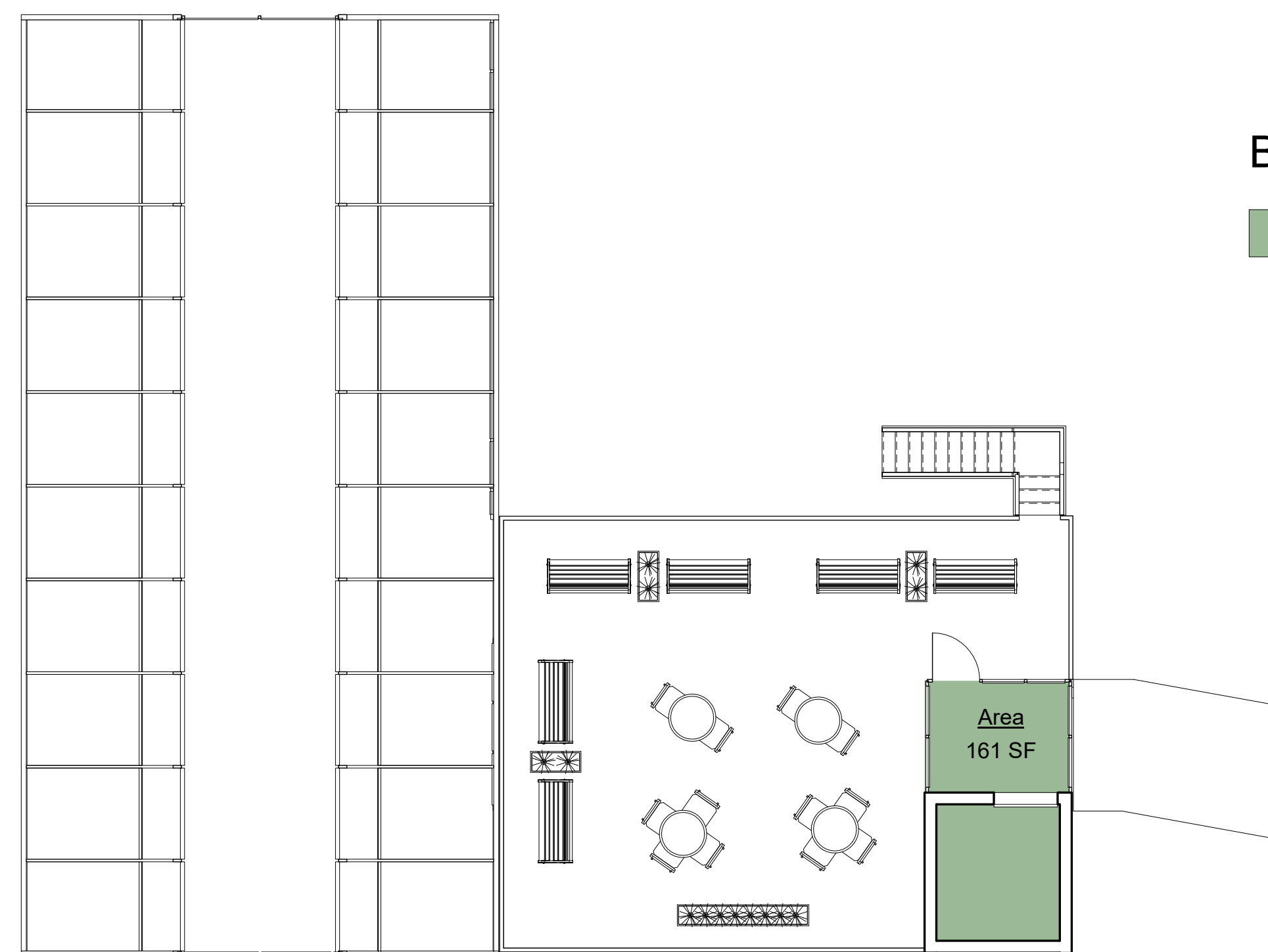
REVISIONS

No.	Description	Date

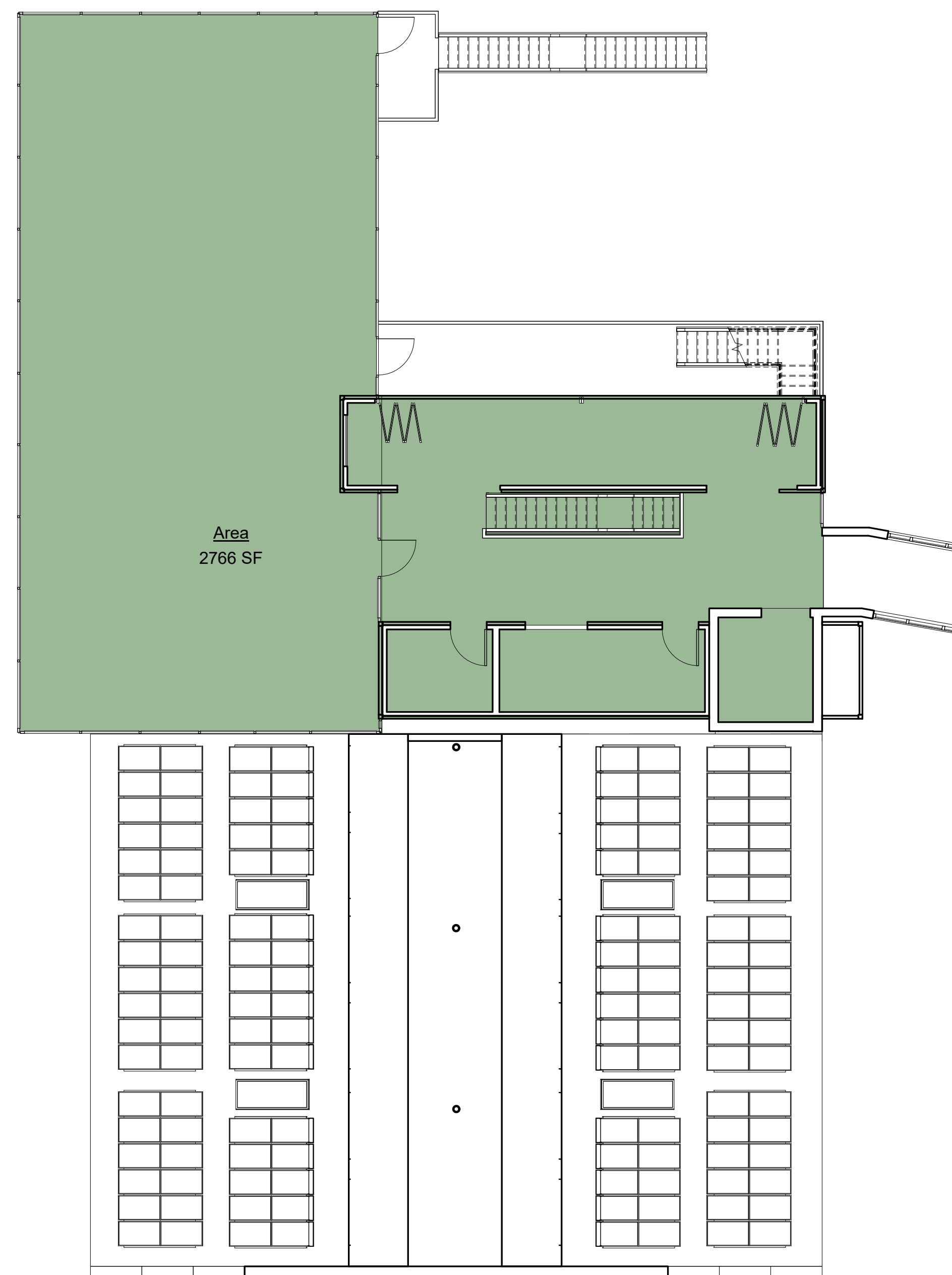
Apartments Gross
Area Plan

A-021

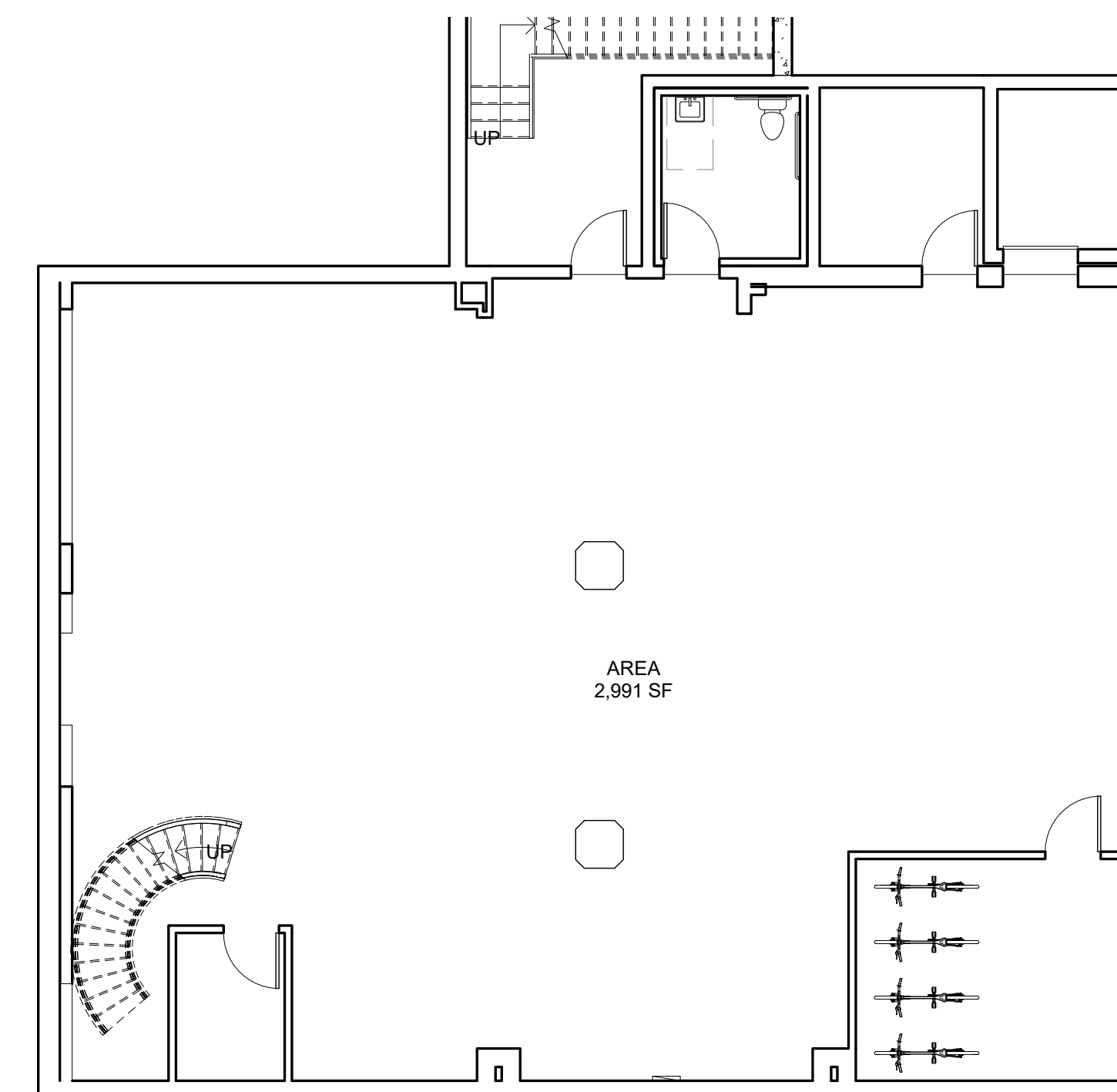
10 SUNNYSIDE AVE



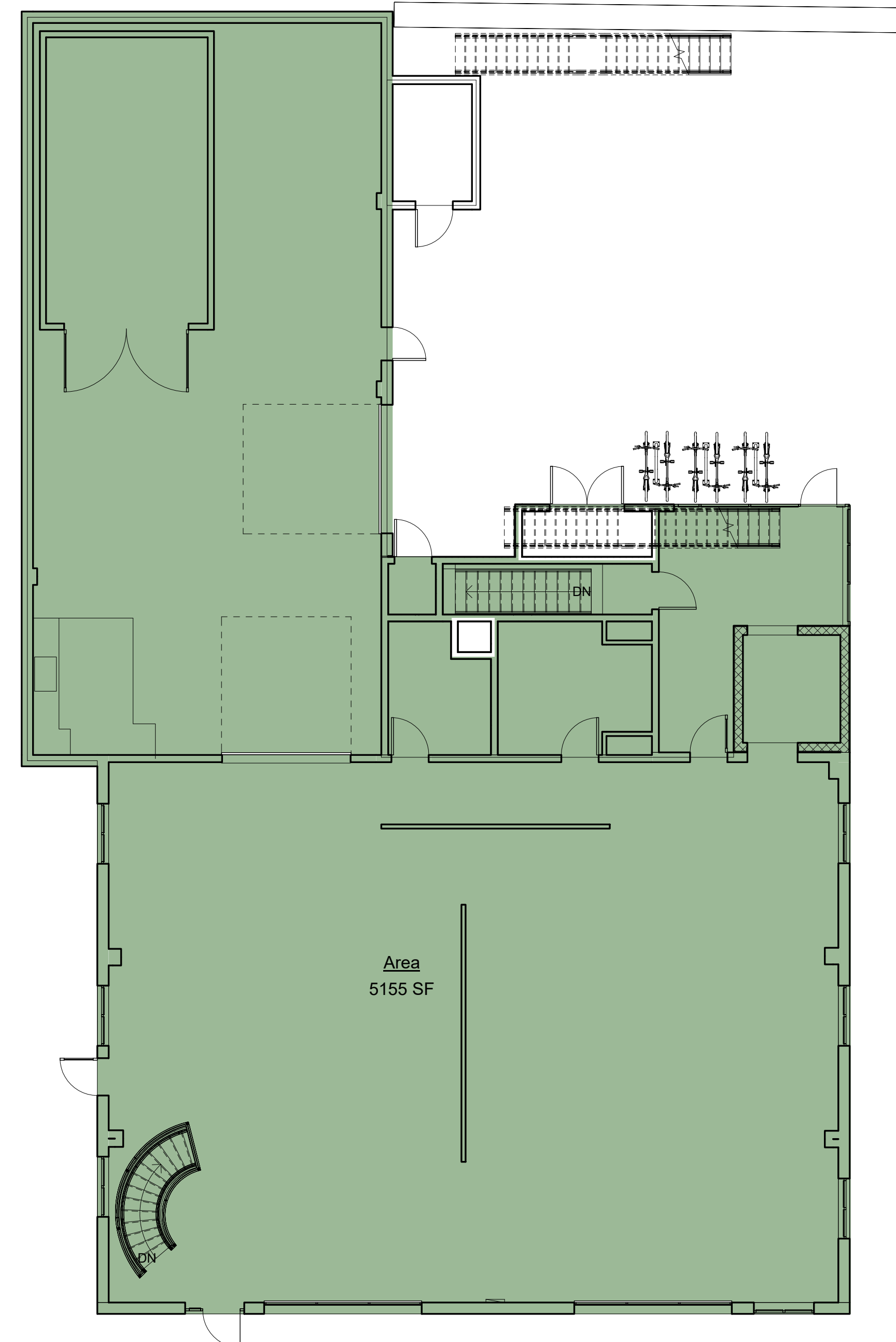
④ Roof Deck Level
1/8" = 1'-0"



③ G.H./CAFE LEVEL
1/8" = 1'-0"



① Basement Level
1/8" = 1'-0"



Building Area Legend

TOTAL BUILDING GROSS SF = 8,082 SF

PROJECT NAME

**10 SUNNYSIDE
AVE**

PROJECT ADDRESS

10 Sunnyside Ave
Arlington MA

CLIENT

Column Health LLC

ARCHITECT



17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143
TELEPHONE: 617-591-8682 FAX:
617-591-2086

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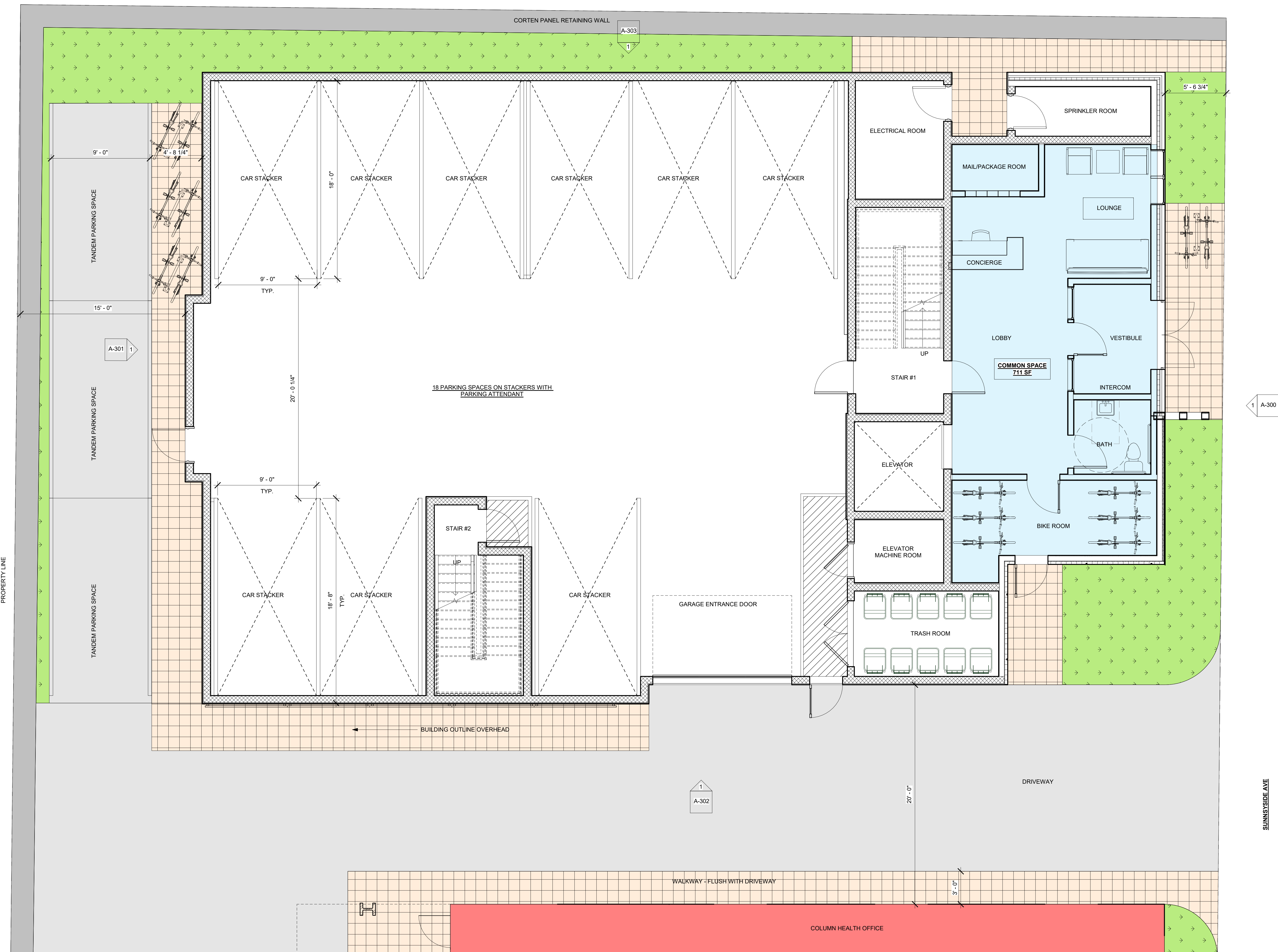
Project number	19119
Date	12-08-20
Drawn by	MB
Checked by	WC
Scale	1/8" = 1'-0"

REVISIONS

[illegible]Offices Gross Area
Plan

A-022

10 SUNNYSIDE AVE



**10 SUNNYSIDE
AVE**

CLIENT

Column Health LLC

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REVISIONS

[illegible]

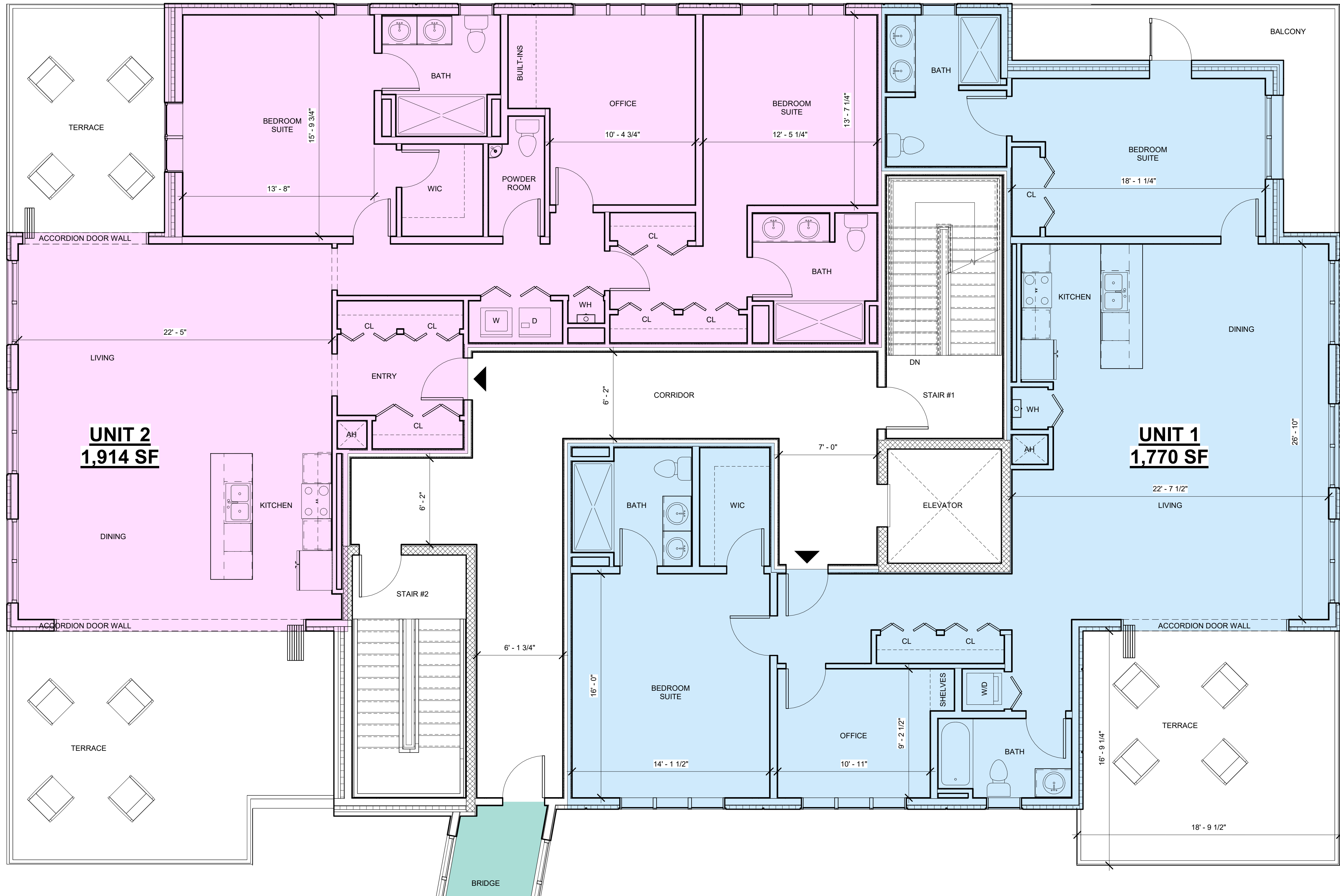
A-102

0 SUNNYSIDE AVE

PROPERTY LINE

\\TKG-SERVER\\Data\\19\\19119 10 Sunnyside Arlington - Beatty Column Health\\03 Drawings\\00 ARCH SD DD\\10 Sunnyside Ave SD Condo - OPTION 6.rvt

12/8/2020 10:44:43 AM



1 2 - Residential 2nd Floor Level
1/4" = 1'-0"



PROJECT NAME
10 SUNNYSIDE AVE

PROJECT ADDRESS
10 Sunnyside Ave
Arlington MA

CLIENT

Column Health LLC

ARCHITECT



KHALSA

17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143
TELEPHONE: 617-591-8682 FAX:
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Scale	1/4" = 1'-0"

REVISIONS		
No.	Description	Date

① 3 - Residential 3rd Floor Level
1/4" = 1'-0"

**10 SUNNYSIDE
AVE**

CLIENT

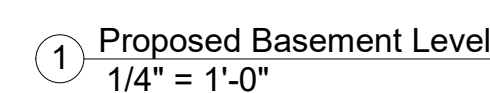
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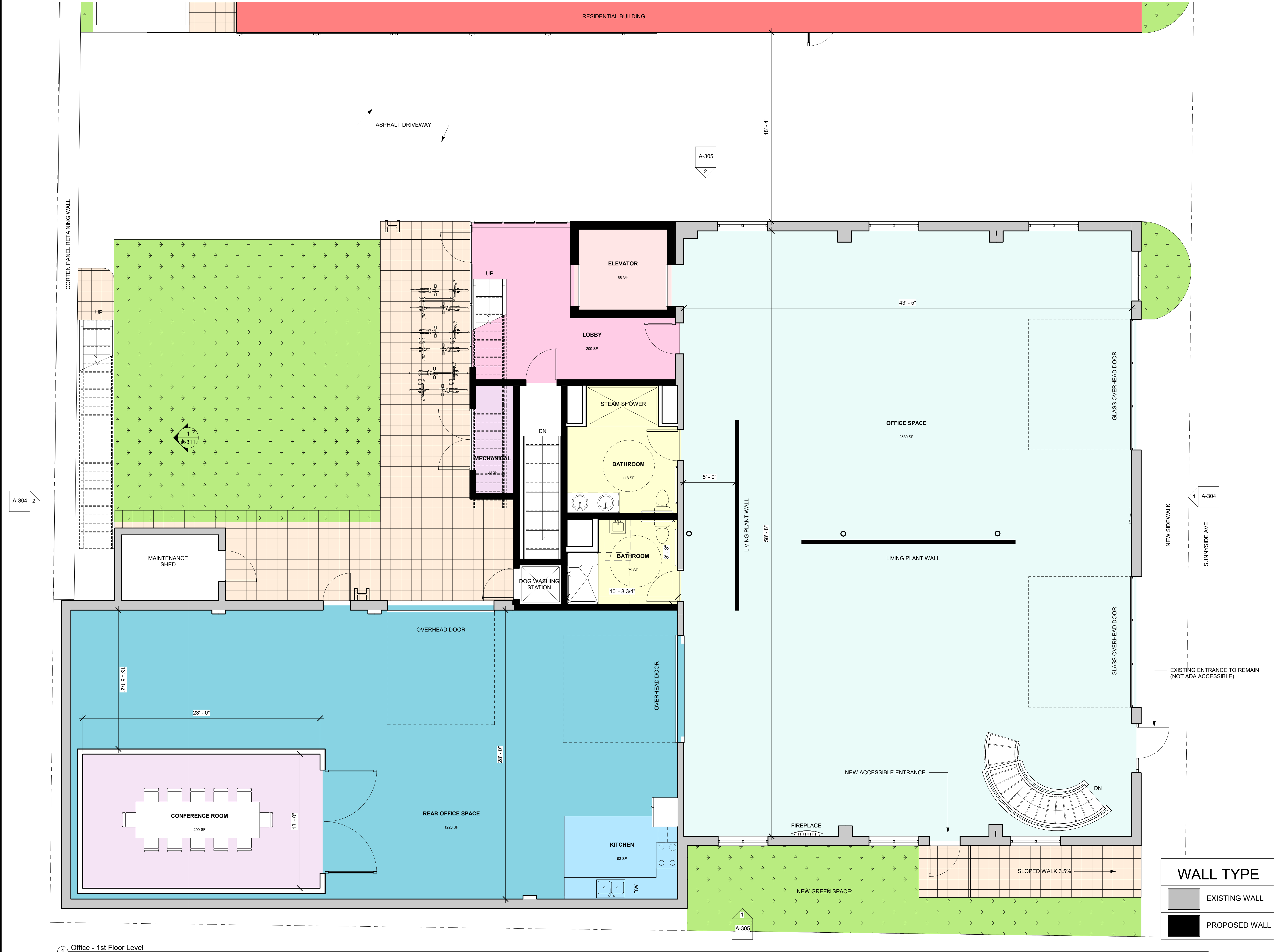
12/8/2020 10:44:59 AM



WALL TYPE	
	EXISTING WALL
	PROPOSED WALL

A-106
10 SUNNYSIDE AVE

12/8/2020 10:45:02 AM




PROJECT NAME
10 SUNNYSIDE AVE

PROJECT ADDRESS
10 Sunnyside Ave
Arlington MA

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No.	Description	Date

Commercial - First
Floor Plan

A-107

10 SUNNYSIDE AVE

① Office - 1st Floor Level
1/4" = 1'-0"

**10 SUNNYSIDE
AVE**

10 Sunnyside Ave
Arlington MA

Column Health LLC



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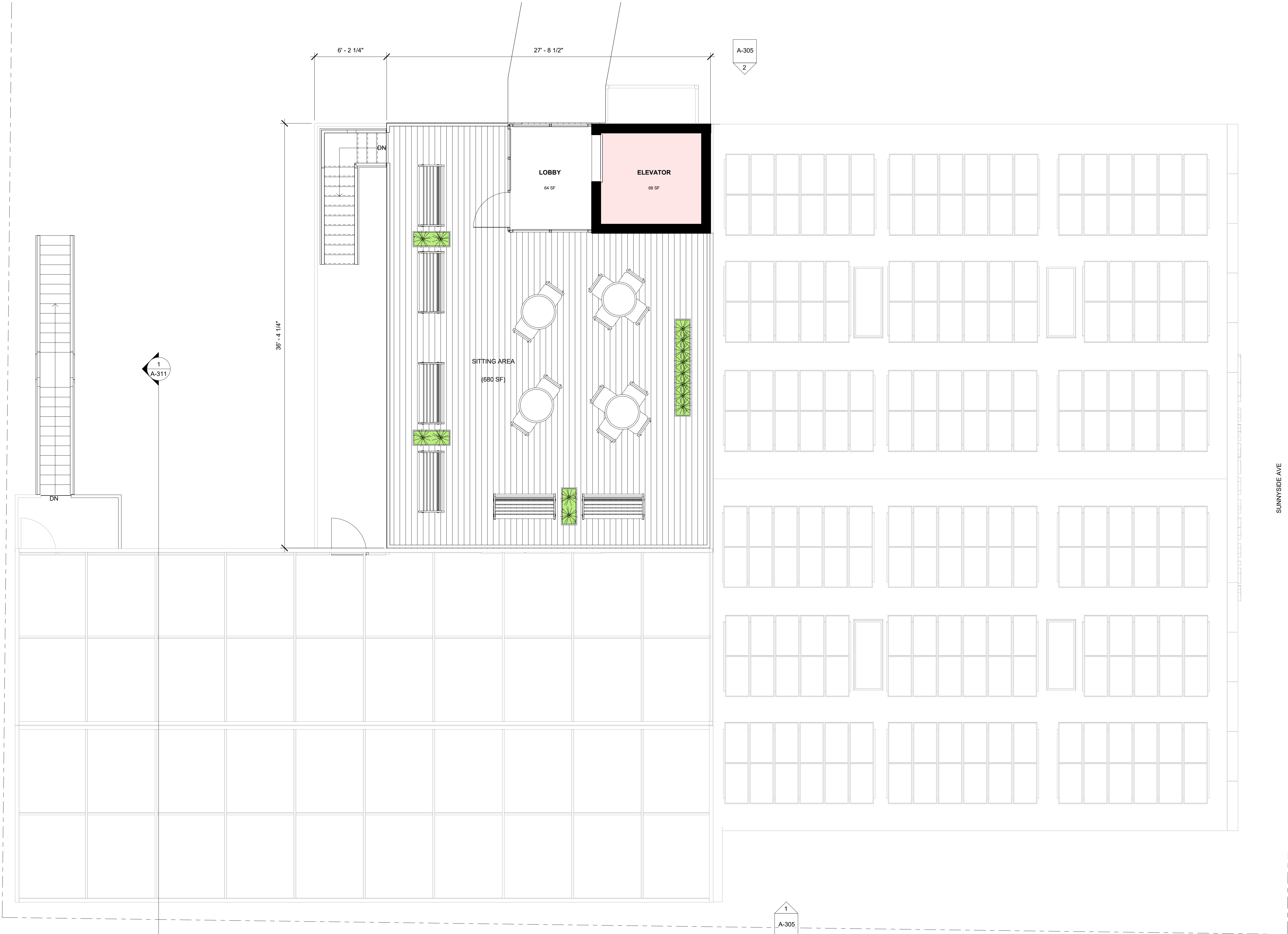
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A-109

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1 Proposed Roof Deck Level
1/4" = 1'-0"

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PROJECT ADDRESS
10 Sunnyside Ave
Arlington MA

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No.	Description	Date

Commercial - Roof
Deck Floor Plan

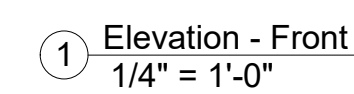
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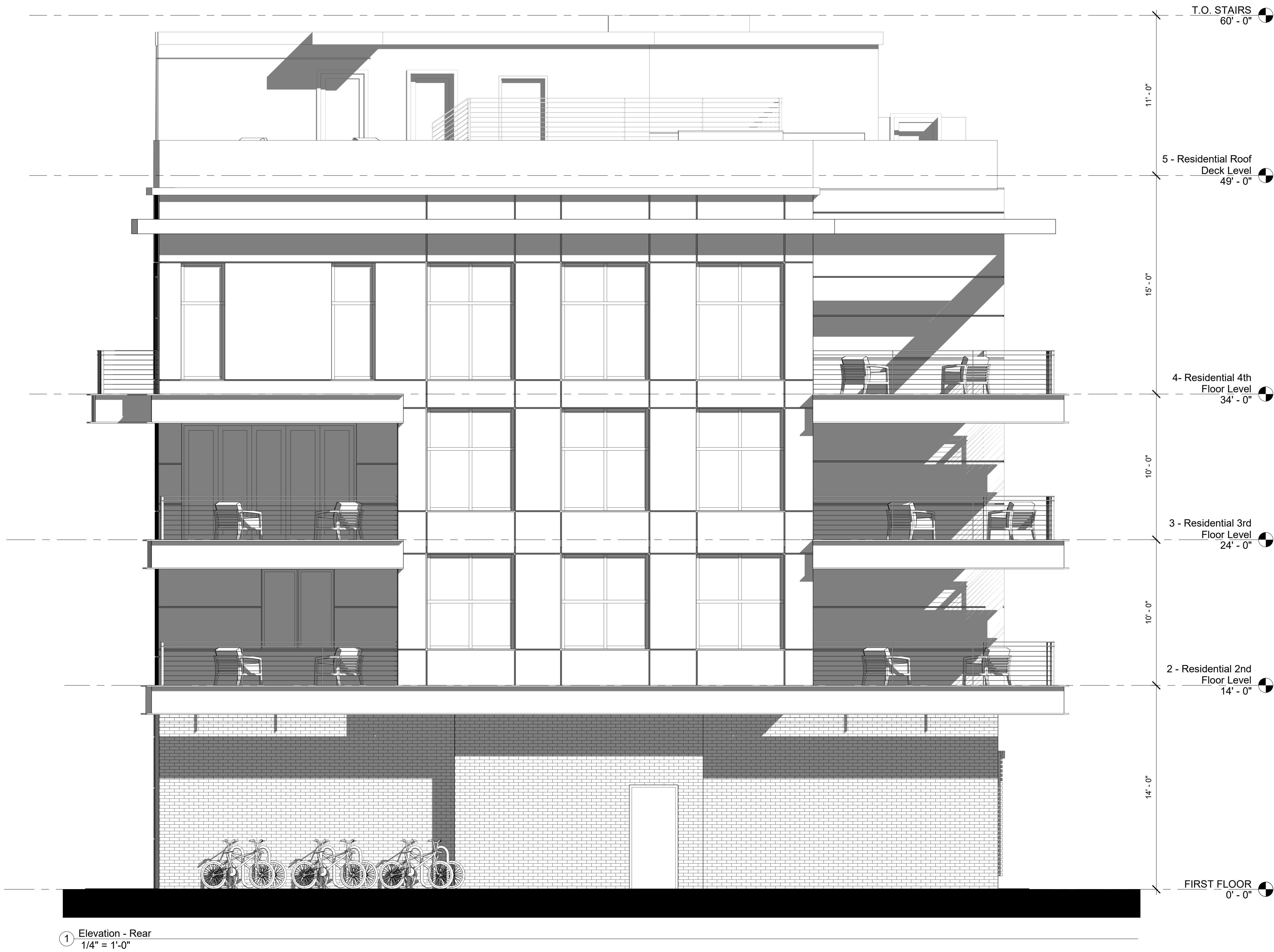
10 SUNNYSIDE AVE

**10 SUNNYSIDE
AVE**

Column Health LLC

0 SUNNYSIDE AVE





PROJECT NAME
**10 SUNNYSIDE
AVE**

PROJECT ADDRESS
10 Sunnyside Ave
Arlington MA

CLIENT

Column Health LLC

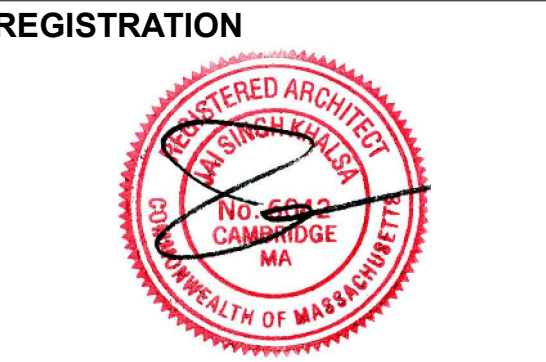
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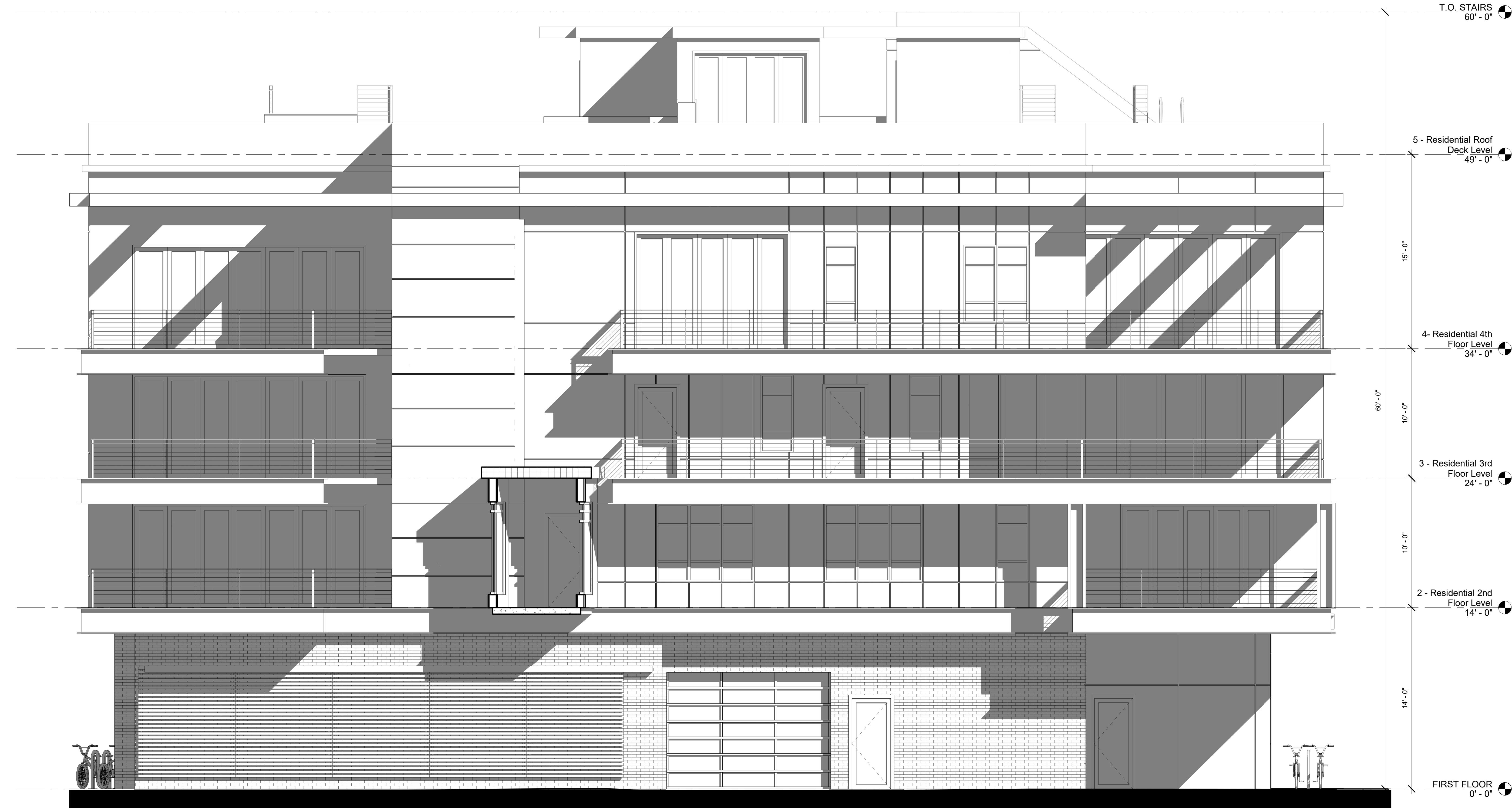


Project number	19119
Date	12-08-20
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Scale	1/4" = 1'-0"

REVISIONS		
No.	Description	Date

Residential - Rear
Elevation

A-301
10 SUNNYSIDE AVE



① Elevation - Left Side
1/4" = 1'-0"

PROJECT NAME
10 SUNNYSIDE AVE

PROJECT ADDRESS
10 Sunnyside Ave
Arlington MA

CLIENT
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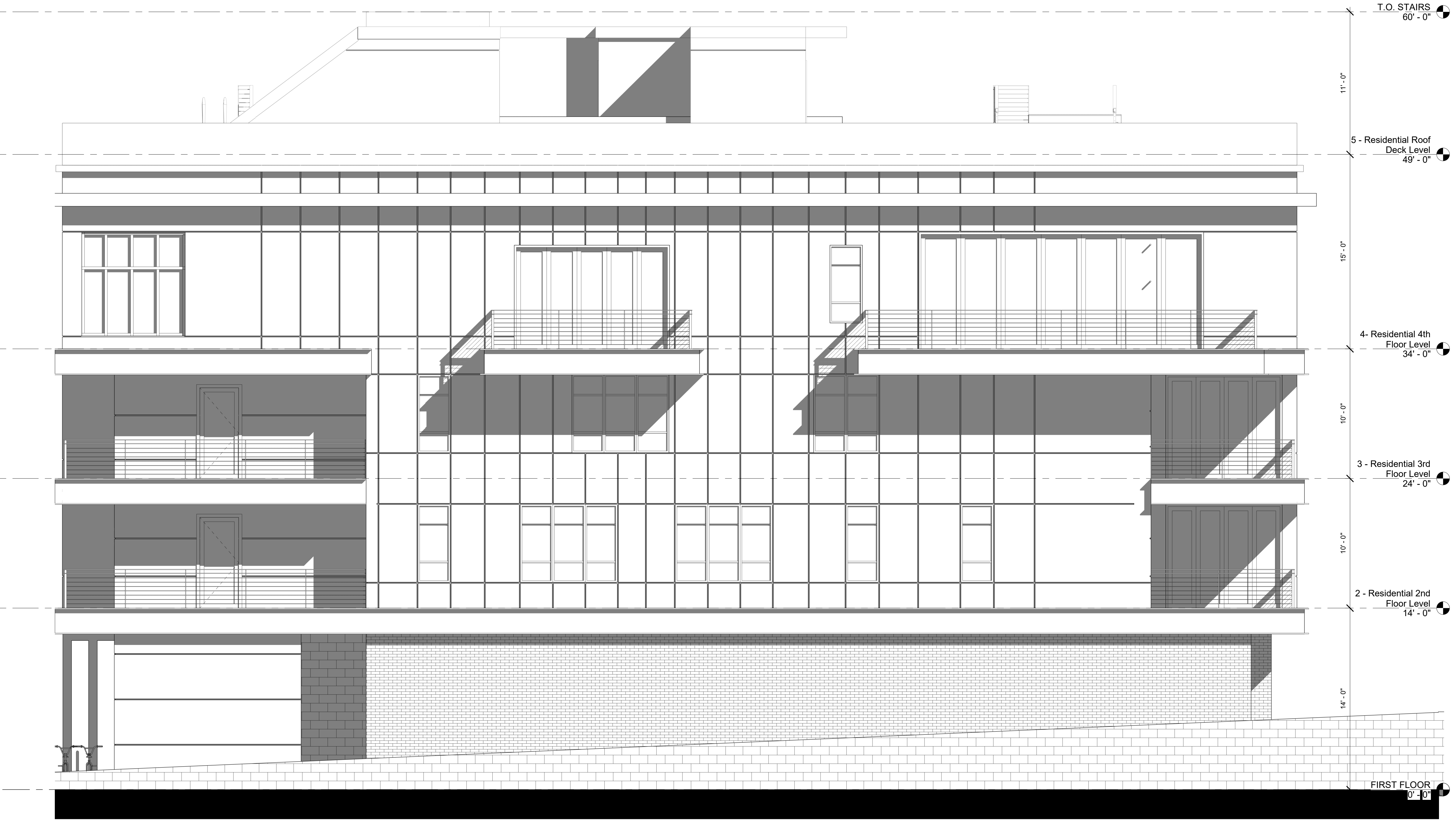
Project number	19119
Date	12-08-20
Drawn by	MB
Checked by	WC
Scale	1/4" = 1'-0"

REVISIONS		
No.	Description	Date

Residential - Left
Side Elevation

A-302

10 SUNNYSIDE AVE



① Elevation - Right Side
1/4" = 1'-0"

PROJECT NAME

10 SUNNYSIDE
AVE

PROJECT ADDRESS

10 Sunnyside Ave
Arlington MA

CLIENT

Column Health LLC

ARCHITECT



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REGISTRATION



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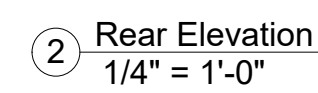
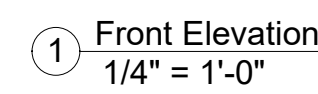
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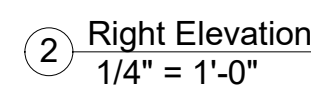
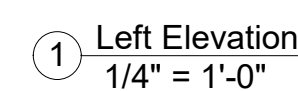
No.	Description	Date

Residential - Right
Side Elevation

A-303

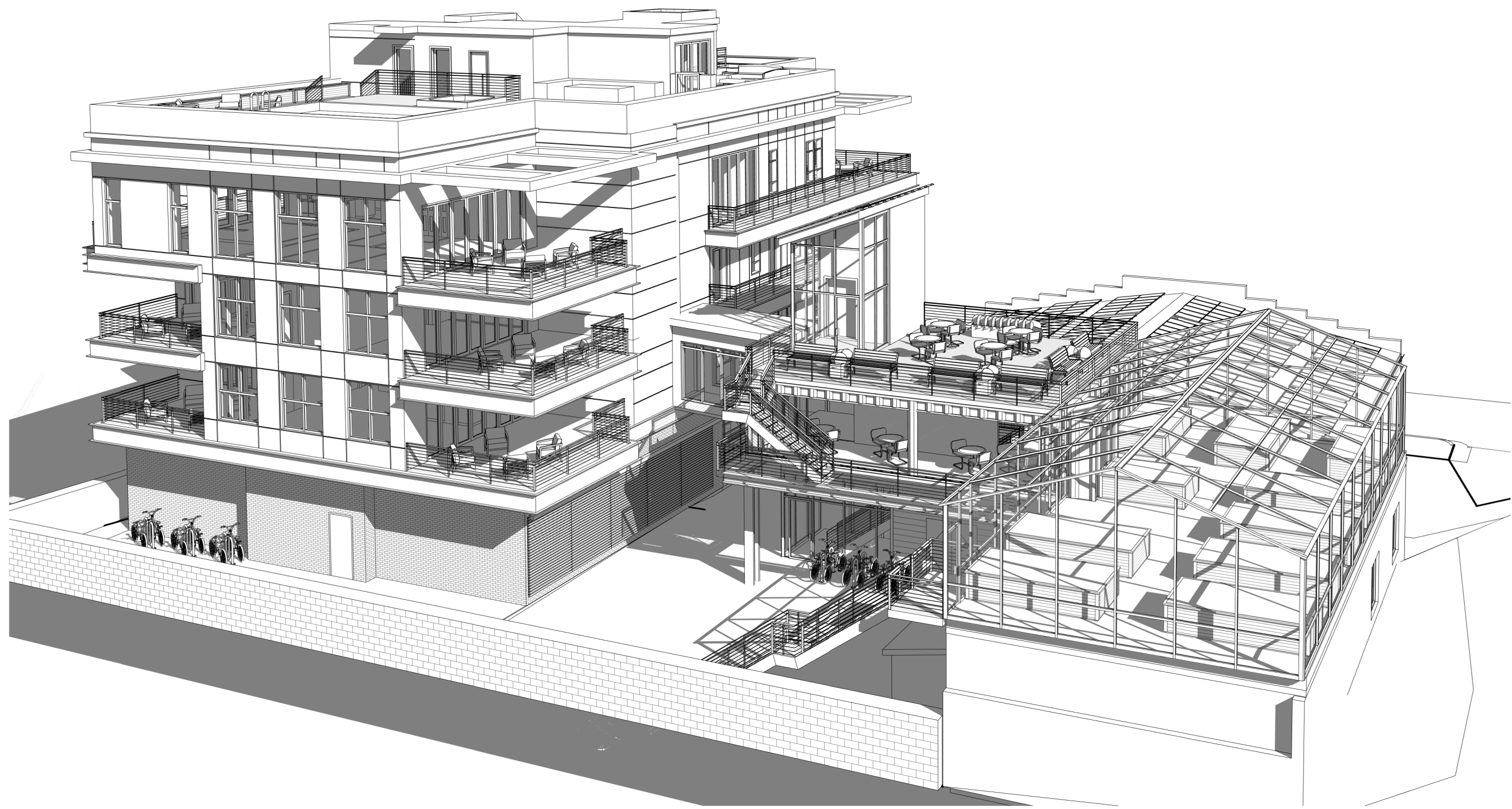
10 SUNNYSIDE AVE





10 SUNNYSIDE AVE

12/8/2020 10:46:06 AM



③ Rear Aerial View #1



① Perspective #1



④ Street View



② Perspective #2

PROJECT NAME

10 SUNNYSIDE
AVE

PROJECT ADDRESS

10 Sunnyside Ave
Arlington MA

CLIENT

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ARCHITECT



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Scale

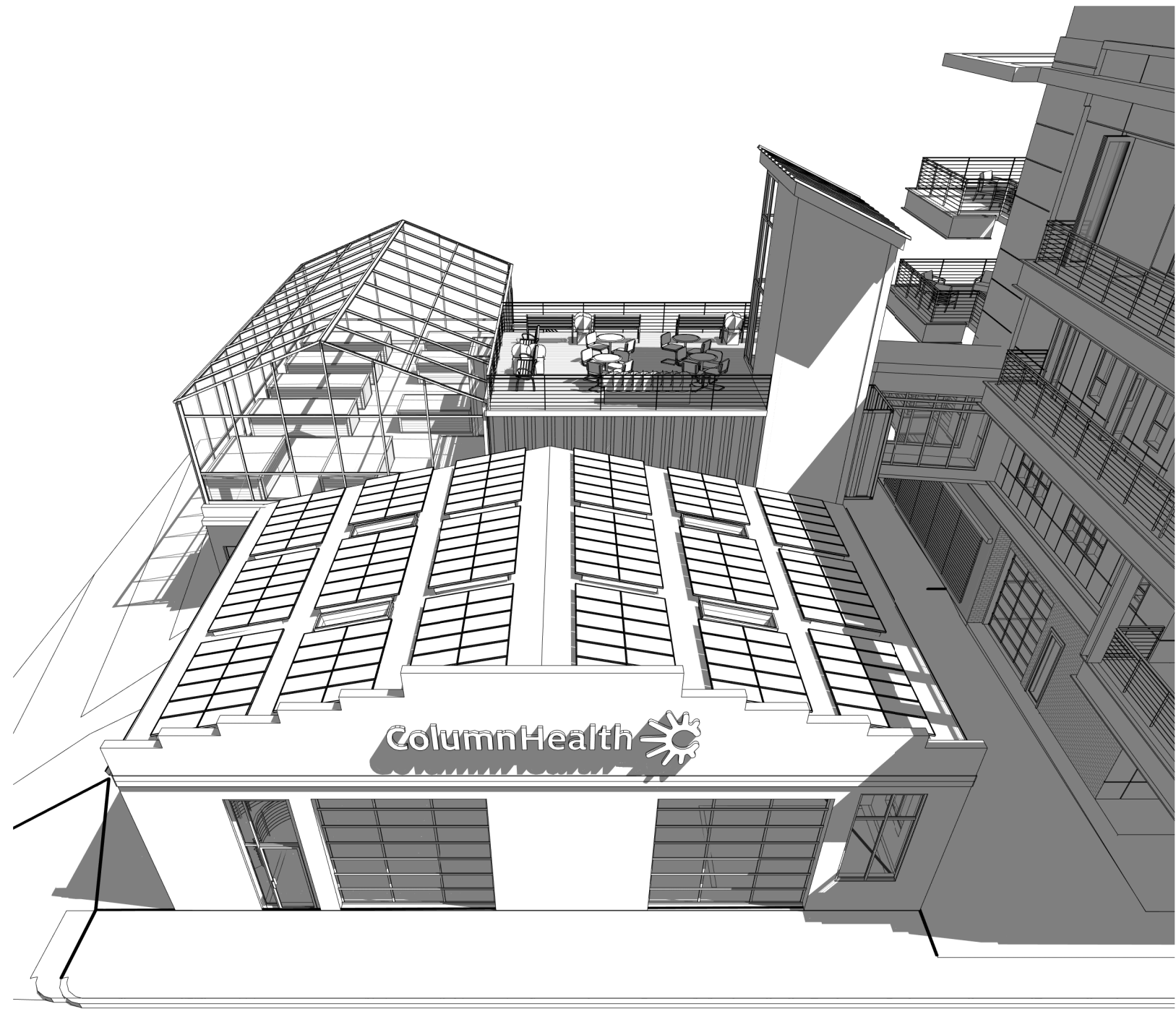
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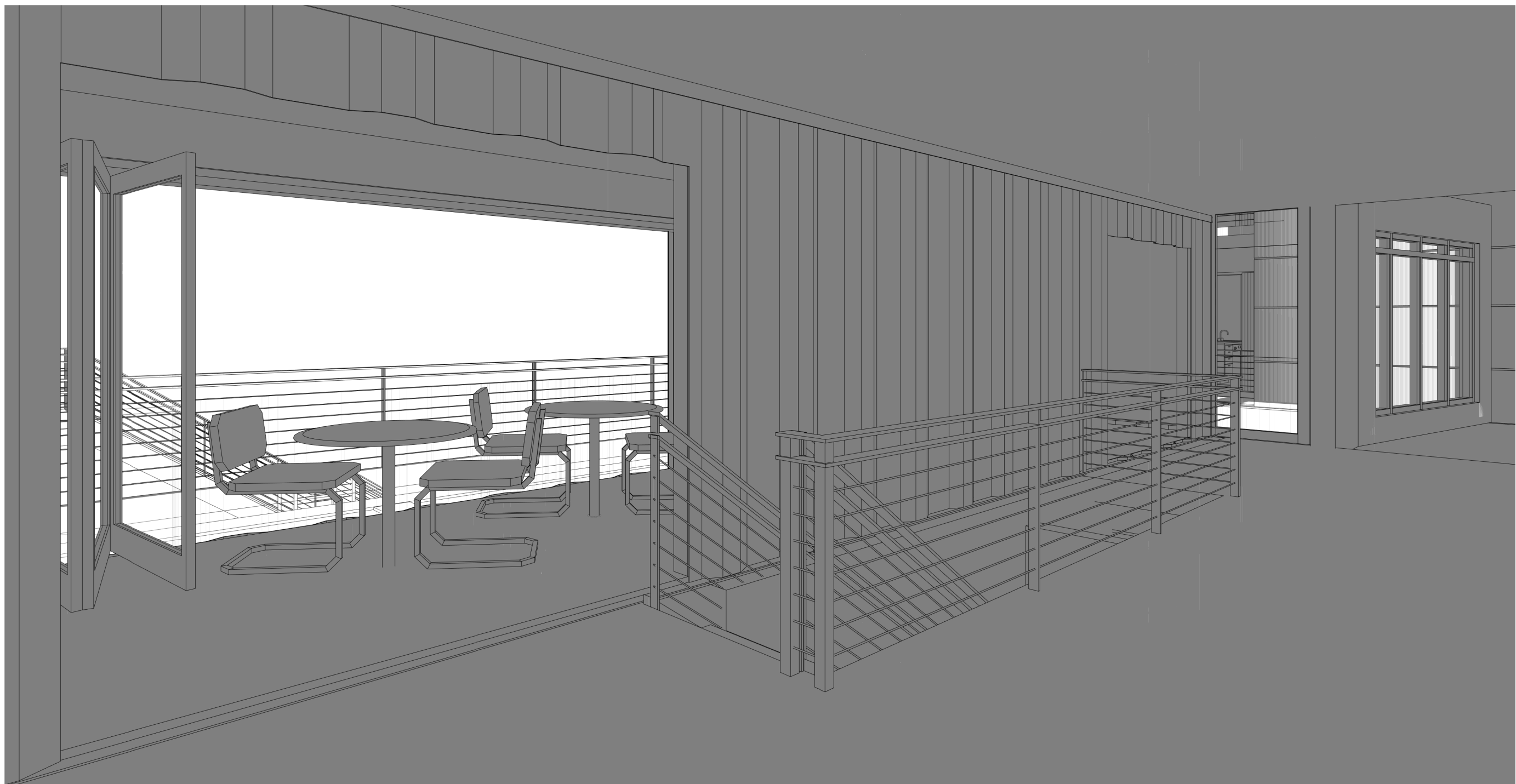
Perspectives #1

A-306

10 SUNNYSIDE AVE



① FRONT AERIAL PERSPECTIVE



② CAFE LOUNGE VIEW



③ GREENHOUSE VIEW



④ REAR VIEW

PROJECT NAME

10 SUNNYSIDE
AVE

PROJECT ADDRESS

10 Sunnyside Ave
Arlington MA

CLIENT

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Date 12-08-20
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Scale

REVISIONS

No.	Description	Date

Perspectives #2

A-307

10 SUNNYSIDE AVE



PROPOSED DEVELOPMENT VIEW LOOKING DOWN SUNNYSIDE AVENUE

PROJECT NAME
10 SUNNYSIDE AVE

PROJECT ADDRESS
10 Sunnyside Ave
Arlington MA

CLIENT

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ARCHITECT



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REGISTRATION



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Date	12-08-20
Drawn by	Author
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Scale	

REVISIONS		
No.	Description	Date

Realistic
Rendering

A-309

10 SUNNYSIDE AVE



PROJECT NAME
**10 SUNNYSIDE
AVE**

PROJECT ADDRESS
10 Sunnyside Ave
Arlington MA

CLIENT
Column Health LLC

ARCHITECT



KHALSA

17 IVALOO STREET SUITE 400
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Project number 19119
Date 12-08-20
Drawn by Author
Checked by Checker
Scale

REVISIONS		
No.	Description	Date

Realistic
Perspectives

A-310

10 SUNNYSIDE AVE



Nitsch Engineering

Supplemental Traffic Impact Study

10 Sunnyside Avenue
Arlington, MA

December 22, 2020

Prepared for:

Column Health
339 Massachusetts Avenue
Arlington, MA 02474

Submitted by:

Nitsch Engineering
2 Center Plaza, Suite 430
Boston, MA 02108

Nitsch Engineering Project #14424



TABLE OF CONTENTS

1	Introduction	1
1.1	Existing Site and Proposed Development	1
1.2	Study Area	1
1.3	Methodology.....	3
2	Existing Conditions	4
2.1	Roadways	4
2.2	Study Intersections.....	4
2.3	Public Transportation	5
3	Existing Traffic Conditions	5
3.1	Traffic Count Data	5
3.2	Safety Analysis.....	8
3.3	Sight Distance	9
4	Future No-Build Traffic Conditions.....	11
4.1	Background Growth	11
4.2	Additional Development	11
4.3	2027 No-Build Traffic Volumes	12
5	Future Build Conditions	14
5.1	Proposed Site Changes	14
5.2	2027 Build Traffic Volumes	14
5.2.1	<i>Proposed Trip Generation</i>	<i>14</i>
5.2.2	<i>Project Trip Distribution and Assignment</i>	<i>14</i>
6	Traffic Analysis	18
6.1	Evaluation Criteria.....	18
6.2	Capacity Analyses.....	19
6.2.1	<i>2020 Existing Conditions Capacity Analysis</i>	<i>19</i>
6.2.2	<i>2027 No-Build Conditions Capacity Analysis</i>	<i>20</i>
6.2.3	<i>2027 Build Conditions Capacity Analysis</i>	<i>20</i>
7	Conclusions and Recommendations	22



LIST OF TABLES

Table 1 – Crash Statistics	8
Table 2 – Sight Distance Criteria.....	10
Table 3 – Sight Distance Evaluation	10
Table 4 – Peak Hour Trip Generation	14
Table 5 – Intersection Level of Service Criteria	18
Table 6 – Capacity Analysis Summary: 2020 Existing Conditions	19
Table 7 – Capacity Analysis Summary: 2027 No-Build Conditions	20
Table 8 – Capacity Analysis Summary: 2027 Build Conditions	21

LIST OF FIGURES

Figure 1: Locus Map and Study Area.....	2
Figure 2: Estimated 2020 Existing Peak Hour Volumes	7
Figure 3: 2027 No-Build Peak Hour Volumes	13
Figure 4: Trip Assignment	16
Figure 5: 2027 Build Peak Hour Volumes	17



1 Introduction

Nitsch Engineering has prepared this Supplemental Traffic Impact Study (TIS) for the proposed residential and office development at 10 Sunnyside Avenue in Arlington, Massachusetts. The Town of Arlington Planning Board indicated that a Traffic Impact Assessment was conducted in June 2020 by Vanasse & Associates, Inc. for a proposed marijuana dispensary at 21 Broadway, which is the parcel adjacent to 10 Sunnyside Avenue. As such, this report references information found in the dispensary report, specifically with regards to existing conditions and safety analysis.

This TIS will review existing roadway conditions, crash data, and traffic volumes, and it will analyze existing and future conditions at intersections in the study area to establish the impact the proposed development would have on traffic operations.

Figure 1 shows the Locus Map and study area.

1.1 Existing Site and Proposed Development

The project site, comprising approximately 16,500 square feet of land area, is currently occupied by an approximate 5,400-square-foot Automotive Center with an unstriped surface parking lot. The site is bounded by a commercial property to the north, the proposed marijuana dispensary to the south, Sunnyside Avenue to the east, and a commercial parking lot to the west.

The proponent proposes to modify and expand the existing site, currently occupied by an approximate 5,400-square-foot Automotive Center, to develop one mixed-use building on site with approximately 8,000 sq/ft of general office and approximately 20,000 sq/ft of residential space that includes five condominiums. The site will also include an indoor parking garage and surface parking to accommodate a total of 21 vehicle parking spaces and 34 bicycle spaces. Access to the site will remain as existing; one curb cut off Sunnyside Avenue.

1.2 Study Area

The study area includes the existing main three roadways, and three intersections within and adjacent to the project site.

Roadways

- Alewife Brook Parkway (Route 16)
- Broadway
- Sunnyside Avenue

Intersections

- Alewife Brook Parkway (Route 16) and Broadway (Signalized)
- Sunnyside Avenue and Broadway (Unsignalized)
- Sunnyside Avenue and Site Driveway (Unsignalized)



Figure 1: Study Area
10 Sunnyside Avenue
Arlington, MA

Data Source: BingMaps
Nitsch Project #: 14424



1.3 Methodology

The traffic analysis herein is summarized in the following sections:

1. An inventory of existing transportation conditions, including roadway capacities, parking, transit, pedestrian and bicycle circulation, and site conditions.
2. An evaluation of future transportation conditions and an assessment of potential traffic impacts associated with the Project and other neighboring projects. Long-term impacts are evaluated for the year 2027, based on a seven-year horizon from the 2020 base year. Expected roadway conditions and deficiencies are identified. This section includes the following scenarios:
 - a. The No-Build Scenario (2027) includes general background growth and additional vehicular traffic associated with specific proposed or planned developments and roadway changes in the vicinity of the Project site; and
 - b. The Build Scenario (2027) includes specific travel demand forecasts for the Project.



2 Existing Conditions

2.1 Roadways

Alewife Brook Parkway (Route 16)

Alewife Brook Parkway is classified as an Urban Principal Arterial under Department of Conservation and Recreation (DCR) jurisdiction. It runs in an approximate north-west direction and spans approximately 2.0 miles from its northern terminus at Mystic Valley Parkway to its southern terminus at Concord Avenue. Within the study area, Alewife Brook Parkway is approximately 38 feet wide and is a two-way, four-lane roadway carrying two lanes of travel in each direction. Parking is prohibited on both sides of the roadway along its entire length. Along the west side of the roadway from Mystic Valley Parkway to Massachusetts Avenue, there is a separated multi-use path. On the west side of the roadway, the Alewife Greenway Bikeway runs parallel to the roadway from Mystic Valley Parkway to Concord Parkway. On the east side of the roadway, there is a separated shared-use path from Massachusetts Avenue to Woodstock Street and again from Broadway to Mystic Valley Parkway. The posted speed limit on Alewife Brook Parkway is 30 miles per hour (mph).

Broadway

Broadway is classified as an Urban Principal Arterial under local jurisdiction. Broadway generally runs in an east-west direction and provides one travel lane in each direction. Within the study area, Broadway generally provides two 11- to 12-foot-wide travel lanes separated by a double-yellow centerline with no marked shoulders and parking provided intermittently along both sides. Sidewalks are provided along both sides of Broadway within the study area, with illumination provided by way of streetlights mounted on wood poles. The posted speed limit along Broadway is 25 mph. Land use within the study area consists of the Saint Paul's Cemetery and residential and commercial properties.


Sunnyside Avenue

Sunnyside Avenue is classified as a Local Access Roadway under local jurisdiction. Sunnyside Avenue generally runs in a north-south direction and provides one travel lane in each direction. Within the study area, Sunnyside Avenue provides an approximate 26-foot wide traveled-way with no marked centerline or shoulders provided and on-street parking permitted along both sides of the roadway. Sidewalks are provided along both sides of Sunnyside Avenue within the study area, with illumination provided by way of streetlights mounted on wood poles. A posted speed limit is not provided along Sunnyside Avenue and, as such, the statutory speed limit is 25 mph. Land use within the study area consists of residential and commercial properties.

2.2 Study Intersections

Alewife Brook Parkway (Route 16) and Broadway

The intersection of Alewife Brook Parkway (Route 16) and Broadway is a four-way, signalized intersection with Alewife Brook Parkway running north-south and Broadway running east-west. Both Alewife Brook Parkway approaches carry two approach lanes: one left-turn/through lane and one through/right-turn lane. Both Broadway approaches are striped as one left-turn/through/right-turn lane in each direction, but both act as two lanes: one left-turn/through lane and one through/right-turn lane. The Alewife Brook Parkway movements have their own phase, followed by an exclusive pedestrian phase, followed by the Broadway eastbound phase, and then the Broadway



westbound phase. There is a shared-use path on the north side of Alewife Brook Parkway at the intersection. Sidewalks are present at all approaches to the intersection and there are crosswalks present across all approaches.

Sunnyside Avenue and Broadway

The intersection of Sunnyside Avenue and Broadway is a three-way, unsignalized intersection with Broadway operating as a free movement through the intersection and Sunnyside Avenue under stop-control. Sunnyside Avenue runs north-south and Broadway runs east-west. Both the Sunnyside Avenue and Broadway approaches carry one approach lane. Note that the Broadway approach lanes are 22 feet wide and although are only striped as single lanes, they operate as two approach lanes to provide queuing storage for vehicles turning onto Sunnyside Avenue. Sidewalks are present at all approaches to the intersection however crosswalks are not present. Wheelchair ramps with detectable warning panels are provided at the northeast and northwest corners of the intersection.

Sunnyside Avenue and the Existing Site Driveway

The intersection of Sunnyside Avenue and the Site Driveway is a three-way, unsignalized intersection with Sunnyside Avenue operating as a free movement through the intersection. Sunnyside Avenue runs north-south and the Site Driveway runs east-west. Both the Sunnyside Avenue and Broadway approaches carry one approach lane. Sidewalks are present along both sides of Sunnyside Avenue.

2.3 Public Transportation

Public transportation services are provided within the study area by the Massachusetts Bay Transit Authority (MBTA) for Bus service. Within the study area, the MBTA operates the Route 87 – Clarendon Hill or Arlington Center - Lechmere Station. Route 87 stops at the Broadway/Sunnyside Avenue intersection; and provides a connection to Arlington Center, Clarendon Hill, Teele Square, Davis Station (MBTA Subway Red Line), Union Square, and Lechmere Station (MBTA Subway Green Line).


MBTA bus service operates Monday through Friday from approximately 5:07 AM to 1:40 AM, on Saturday from 5:15 AM to 1:35 AM, and on Sunday from 6:00 AM to 1:33 AM, with 30-minute-or-less headways on weekdays and Saturdays and 60-minute-or-less headways on Sundays. All MBTA buses are handicapped and wheelchair accessible.

3 Existing Traffic Conditions

3.1 Traffic Count Data

Turning Movement Count (TMC) Data

Precision Data Industries, Inc. (PDI) of Framingham, Massachusetts was retained to collect traffic data on Thursday, December 3, 2020 for all study intersections. TMC data was recorded from 7:00 AM to 9:00 AM to capture the weekday morning peak period volumes and from 4:00 PM to 6:00 PM to capture the weekday evening peak period volumes. The counts include passenger vehicles, heavy vehicles, buses, single-unit trucks, bicycles, and pedestrians. Accurate Counts collected TMC data at the intersection of Alewife Brook Parkway and Broadway on October 18, 2016. According to the MassDOT guidance, the Annual Growth Factors for each year were applied



to year 2019; however, no seasonal adjustment factor for the October data (0.93) or the November data (0.97) was applied as the traffic volumes.

COVID-19 Traffic Data Adjustment

Since March 2020, the COVID-19 pandemic caused the State of Massachusetts to close most businesses, schools, retail stores, and restaurants, significantly altering daily traffic operations. On May 2020, MassDOT published a new Engineering Directive E-20-005, to provide guidance on how to estimate existing and future traffic counts because traffic counts taken after March 13, 2020 may undercount the baseline for which future year are based. As such, we contacted the Town of Arlington to collect traffic studies completed recently in the study area. The Clarendon Hill Traffic Impact and Access Study, conducted in 2017, included 2016 counts taken at the Alewife Brook Parkway/Broadway intersection. As such, the 2016 traffic volumes at this intersection were utilized and adjusted to 2019 volumes following the procedures outlined in the MassDOT Guidance on Traffic Count Data (April 2020).

Historical data for the Sunnyside Avenue/Broadway intersection was not available therefore the counts collected by PDI on December 3, 2020 were used to generate a percent difference at the Alewife Brook Parkway intersection during the weekday morning and weekday evening peak hours. It was found that the 2020 counted volumes comprised only 44% of the 2019 volumes (grown from 2016) during the weekday morning peak hour and 47% of the 2019 volumes during the weekday evening. Therefore, average factors of 2.3 and 2.1 were applied to the 2020 collected volumes at the Sunnyside Avenue/Broadway intersection for the weekday morning and weekday evening peak hours, respectively. **The adjusted traffic volumes will be referred to as the 2020 existing condition in this report.** The 2016 and 2020 raw traffic counts are included in Appendix A.

Figure 2 shows the 2020 existing peak-hour traffic volumes at the study intersections in the form of turning movements.

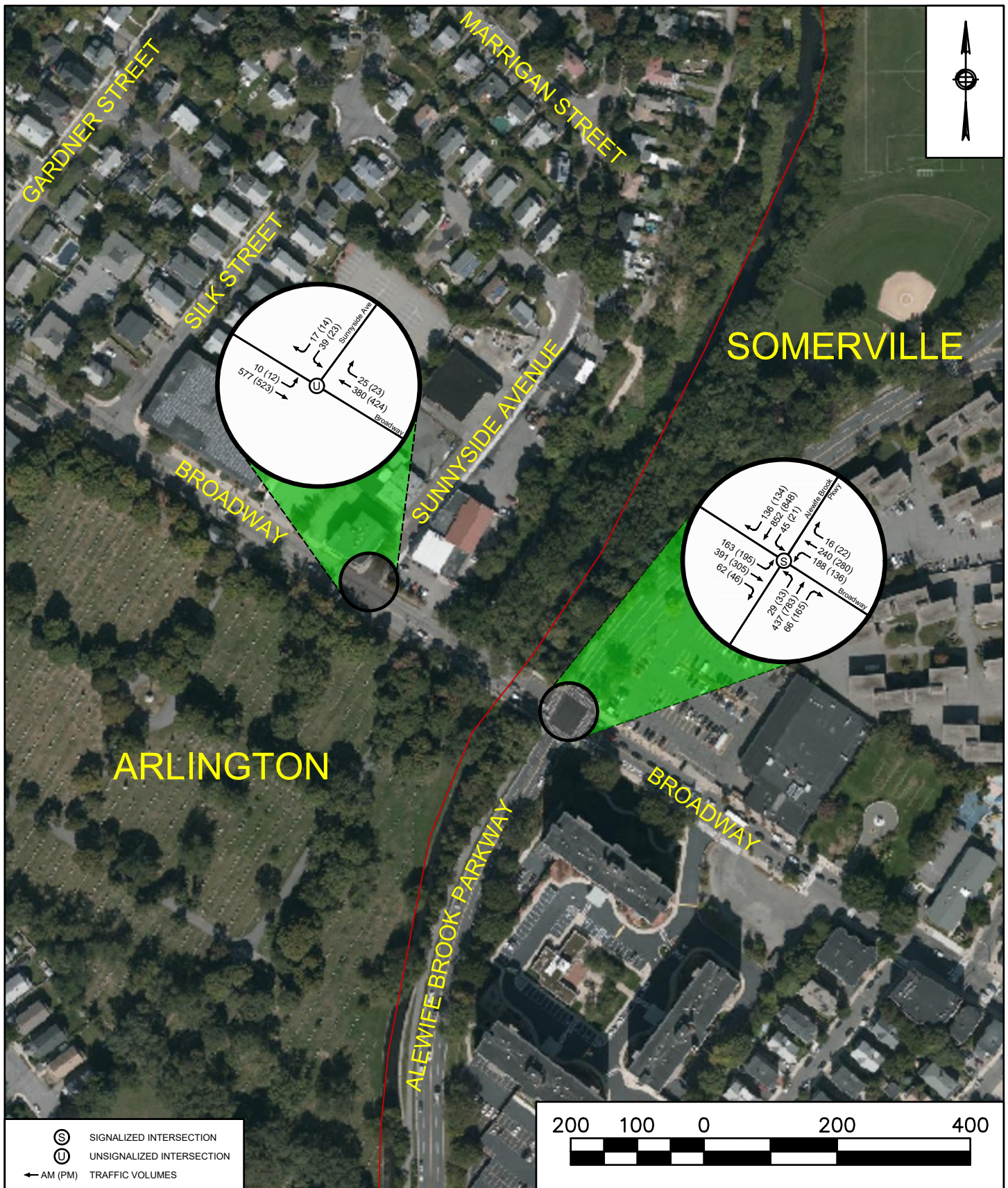


Figure 2: Estimated 2020 Existing Peak Hour Volumes
 10 Sunnyside Avenue
 Arlington, MA


Data Source: BingMaps
 Nitsch Project #: 14424

3.2 Safety Analysis

As the crash safety analysis was conducted for the marijuana dispensary adjacent to the project site, we have summarized the findings from the June 2020 Traffic Impact Assessment (TIA). As defined in the TIA, Motor vehicle crash data was acquired from the Massachusetts Department of Transportation (MassDOT) Safety Management/Traffic Operations Unit for the most recent five-year period available (2013 through 2017) to examine motor vehicle crash trends occurring within the study area. The crash statistics table for the Alewife Brook Parkway/Broadway intersection from the June 2020 TIA are included in Table 1. The Broadway at Sunnyside Avenue intersection is not listed as a HSIP location and has a crash rate below the MassDOT average. Therefore, this intersection was not reported.

Table 1 – Crash Statistics

Intersections	Crash Statistics
Total Crashes By Year	
2013	8
2014	7
2015	6
2016	16
2017	13
Total (5 Years)	50
Intersection Crash Rate	
Calculated ^a	0.83
Average, District 4 ^{a,c}	0.73
Average, Statewide ^{a,c}	0.78
Severity of Crash	
Property Only	32
Injury	17
Fatality	0
Hit and Run	0
Not Reported (other)	1
Manner of Collision	
Angle	31
Rear-End	7
Rear-Rear	3
Head-On	5
Sideswipe	3
Single Vehicle	1
Other	0
^a Crashes per Million Entering Vehicles (MEV) ^b MassDOT's average crash rates for intersections are based on the latest information available as of June 2018 ^c Rain, snow, sleet/hail/freezing rain/freezing drizzle, blowing sand/snow; Wet, icy, or snowy road surface	



The intersection of Alewife Brook Parkway and Broadway experienced the highest frequency of accidents over the five-year review period with a total of 50 accidents reported at the intersection, averaging 10.0 accidents per year. Most accidents involved property damage only (32 out of 50), occurred on dry pavement (42 out of 50), during daylight (26 out of 50), and involved angle type collisions (31 out of 50). The intersection was found to have a motor vehicle crash rate above the MassDOT average for the District in which the Project is located (District 4). No fatalities were reported at any of the study area intersections over the five-year period reviewed. In addition, the Highway Safety Improvement Program (HSIP) database was reviewed. The intersection of Alewife Brook Parkway and Broadway is listed as a HSIP cluster in the most recent (2015-2017) HSIP cluster listing.

3.3 Sight Distance

Stopping Sight Distance (SSD) is the length of the roadway ahead that is visible to the driver and should be long enough to enable a vehicle traveling at or near the design speed to stop before reaching a stationary object in its path. Stopping sight distance is the sum of the distance traversed by the vehicle from the instant the driver sights an object necessitating a stop to the instant the brakes are applied and the distance needed to stop the vehicle from the instant brake application begins.

Intersection Sight Distance (ISD) is the length of the leg of the departure sight triangle along the major road in both directions for a vehicle stopped on the minor road waiting to depart. The critical departure sight triangles for the proposed site driveway are for traffic approaching from either the left or right for left turns from driveway onto Sunnyside Avenue. The SSD and ISD values associated with a given design speed are shown in Table 2.

Table 2 – Sight Distance Criteria

DESIGN SPEED (MPH)	DESIGN STOPPING SIGHT DISTANCE VALUE ¹ (FT)	RECOMMENDED INTERSECTION SIGHT DISTANCE VALUE ² (FT)
15	80	170
20	115	225
25	155	280
30	200	335
35	250	390
40	305	445
45	360	500
50	425	555
55	495	610
60	570	665
65	645	720
70	730	775
75	820	830
80	910	885
Source: A Policy on Geometric Design of Highways and Streets, AASHTO, Washington DC (2011)		
¹ Design value based on a grade of less than 3%, a brake reaction distance predicted on a time of 2.5 seconds and a deceleration rate of 11.2 ft/s ²		
² Recommended value based on Case B1 - a stopped passenger car to turn left onto a two-lane highway with no median and grades 3% or less		

Using the statutory speed limit of 25 MPH for Sunnyside Avenue, we calculated the required sight distance at the Site Driveway. As shown in Table 3, both SSD and ISD values at the Site Driveway are sufficient to meet current traffic engineering standards.

Table 3 – Sight Distance Evaluation

Intersecting Street	Stopping Sight Distance (SSD)			Intersection Sight Distance (ISD)		
	Traveling	Calculated	Measured	Looking	Calculated	Measured
Site Driveway at Sunnyside Avenue	NB	155	180	Right	280	210 ^a
	SB	155	310	Left	280	280
^a Clear line of sight provided to Broadway						



4 Future No-Build Traffic Conditions

Nitsch Engineering used the 2020 existing traffic volumes as the baseline for projecting traffic volumes to future 2027 No-Build conditions. To determine future 2027 conditions, the following steps are included:

- Project existing 2020 traffic volumes seven years in the future to the horizon year (2027) using an annual background traffic growth factor to account for regional growth;
- Add traffic volumes associated with any planned developments that may impact the study area;
- Include any planned roadway improvements that may affect traffic volumes; and
- Analyze the study area location to determine future traffic operations.

4.1 Background Growth

We reviewed the Town of Arlington's 2015 Master Plan to determine an appropriate growth rate to apply to the 2020 existing traffic volumes. As noted in Table 2.1 in Chapter 2 of the Master Plan, the expected growth from 2020 to 2030 is 3.3%, which equates to an annual 0.33% background growth rate. Understanding that development is increasing in the Greater Boston Area, we selected a conservative rate of 2.0% per year to represent regional background growth of traffic in this area. We applied this growth rate over the 7-year design period for the turning movement data.

4.2 Additional Development

Nitsch Engineering researched past traffic reports to obtain information on proposed development near the study area. We identified the following three development projects that can impact traffic within the study area.

21 Broadway, Arlington, MA- Retail Marijuana Dispensary


The project proposes renovating a 3,000-square-foot vacant bank to develop a marijuana dispensary at 21 Broadway. The site's access will be served by one entrance-only driveway along Broadway and one exit-only driveway along Sunnyside Avenue. We obtained the project generated trips and trip assignment for the weekday evening peak hour from the Traffic Impact Assessment conducted by Vanasse & Associates, Inc., and used them in our analysis. Since the dispensary would open its business after the weekday morning peak hour, we have not generated or included weekday morning peak hour trips associated with this project for our analysis.

34 North Street, Somerville, MA- Clarendon Hill Redevelopment

The project proposes to demolish 216 existing apartment units and replace them with 591 new residential units at 34 North Street. We obtained the site-generated traffic and trip assignment for both weekday morning and weekday evening peak hours from the Traffic Impact and Access Study conducted by Design Consultants, Inc., and used them in our analysis.

1154 Broadway, Somerville, MA- Broadway Hotel

The project proposes constructing one building with 75 hotel rooms, a coffee shop, a fitness center, a restaurant, and a rooftop on a vacant lot at 1154 Broadway. We obtained the site-generated trips and trip assignments for both weekday morning and weekday evening peak hours from the Traffic Impact and Access Study conducted by



Design Consultants, Inc. However, the trip assignments do not include our study intersections. Therefore, we used the existing distribution at our study intersections to distribute trips from this project.

Appendix B includes the trip assignment diagrams from the projects mentioned above.

4.3 2027 No-Build Traffic Volumes

We developed the 2027 No-Build volumes by applying annual growth rates for seven years to the 2020 Existing conditions volumes turning movements at the three study intersections and then we added to all three study intersections the trips generated by the additional development projects. Figure 3 presents the peak hour traffic volumes for 2027 No-Build conditions.

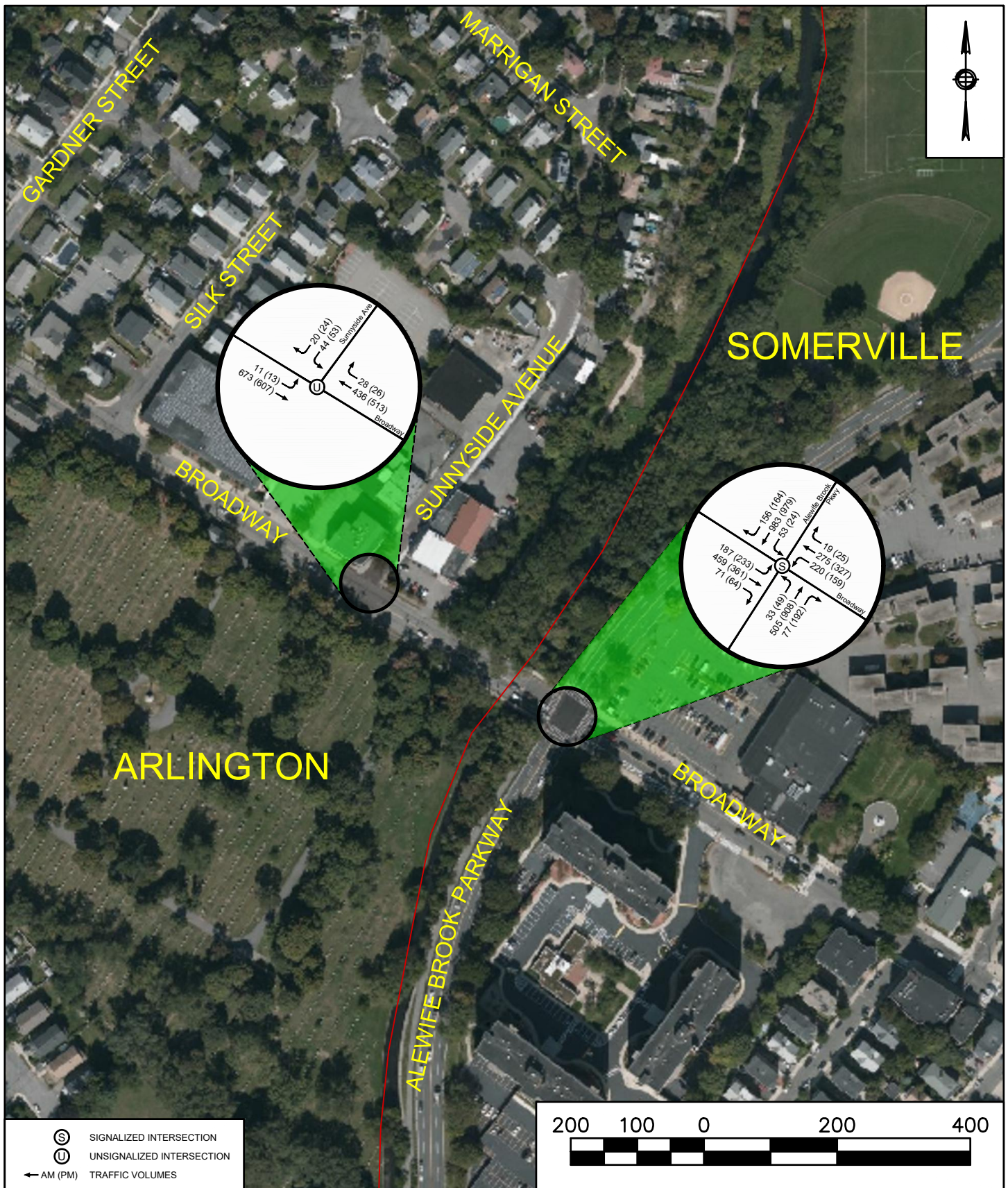


Figure 3: 2027 No-Build Peak Hour Volumes
 10 Sunnyside Avenue
 Arlington, MA

5 Future Build Conditions

5.1 Proposed Site Changes

The proponent proposes to modify and expand the existing site, currently occupied by an approximate 5,400-square-foot Automotive Center, to develop one mixed-use building on site with approximately 8,000 sq/ft of general office and approximately 20,000 sq/ft of residential space that includes five condominiums. The site will also include an indoor parking garage and surface parking to accommodate a total of 21 vehicle parking spaces and 34 bicycle spaces. Access to the site will remain as existing; one curb cut off Sunnyside Avenue.

5.2 2027 Build Traffic Volumes

The 2027 Build traffic volumes comprise the 2027 No-Build volumes and the vehicle trips generated by the proposed development. The individual turning movements were applied to the study intersections.

5.2.1 Proposed Trip Generation

We estimated the trip generation for the proposed land uses to obtain the trips generated by the proposed Project using the Institute of Transportation Engineers (ITE) *Trip Generation, 10th Edition*.¹ For the new condominium complex, we used LUC 220 – “Multifamily Housing (Low-Rise)”, which includes apartments, townhouses, and condominiums located within the same building with at least three (3) other dwelling units. For the offices, we used LUC 710 – “General Office Buildings.” As the existing land use did not generate any trips during the count periods, a trip generation credit was not applied. The total future trips are shown in Table 4.

Table 4 – Peak Hour Trip Generation

Period	Direction	Future Peak Hour Trips		
		Apartment Trips	Office Trips	Total Trips
Weekday morning	Enter	0	8	8
	Exit	2	1	3
	Total	2	9	11
Weekday evening	Enter	2	1	3
	Exit	1	8	9
	Total	3	9	12

Detailed trip generation calculations are provided in Appendix C.

5.2.2 Project Trip Distribution and Assignment

The traffic volume to and from the proposed development site will be distributed and assigned for the weekday morning and weekday evening peak hours based on the existing travel patterns and logical travel routes, which are based on the existing roadway network both within the Town and the surrounding region.

¹ *Trip Generation*, Institute of Transportation Engineers, 10th Edition, 2016, Washington, D.C.



To distribute the site generated traffic volume through the roadway network, the volumes in Table 4 were multiplied by the trip distribution percentages assigned to the additional intersection volumes. The site-generated traffic volumes are shown on Figure 4 for the weekday morning and weekday evening peak hours.

The Build Condition traffic volumes were calculated by combining the No-Build traffic volumes with the site-generated traffic volumes, which are shown on Figure 5.

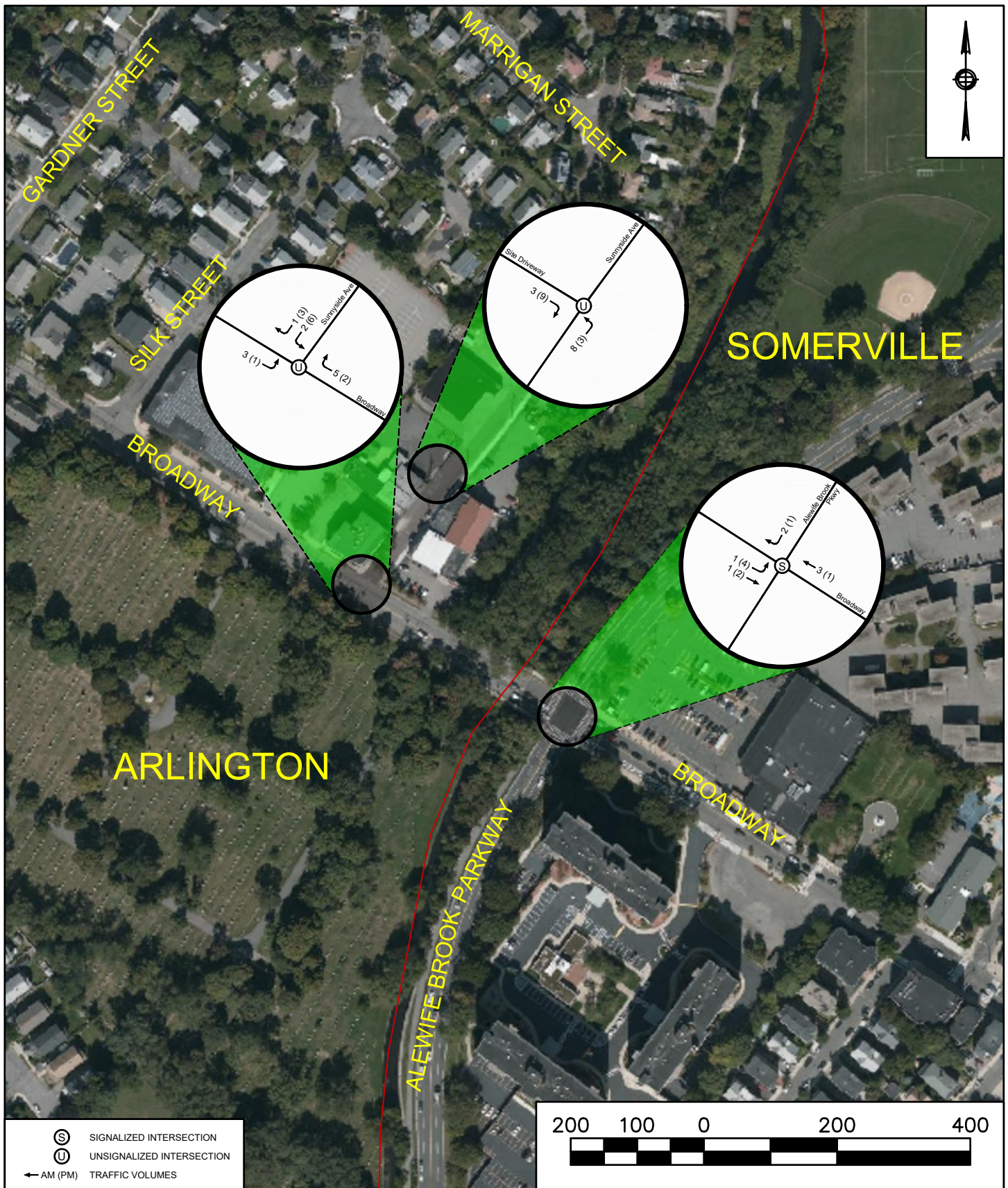


Figure 4: Trip Assignment
 10 Sunnyside Avenue
 Arlington, MA

Data Source: BingMaps
 Nitsch Project #: 14424

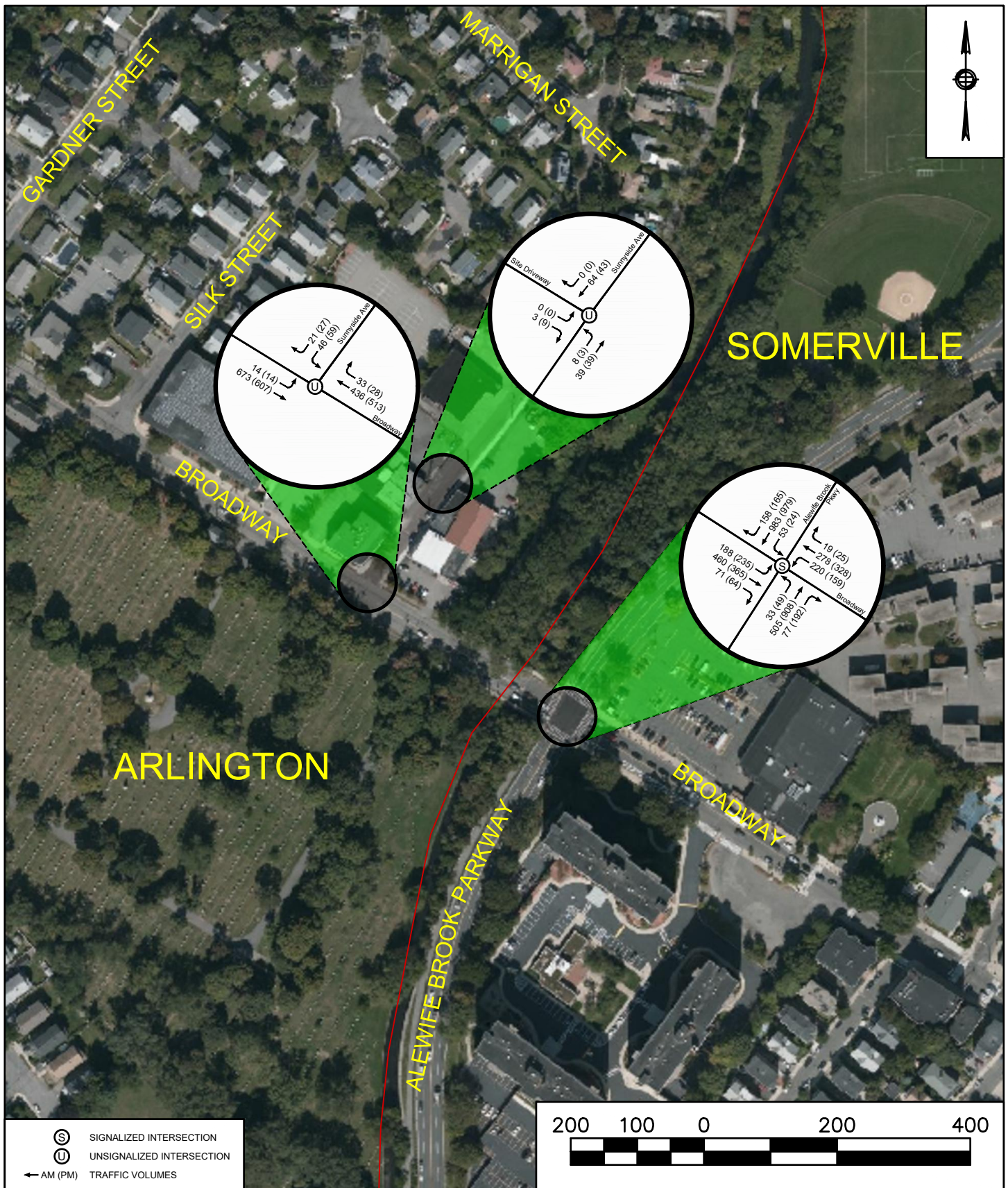


Figure 5: 2027 Build Peak Hour Volumes
 10 Sunnyside Avenue
 Arlington, MA

Data Source: BingMaps
 Nitsch Project #: 14424

6 Traffic Analysis

6.1 Evaluation Criteria

Traffic operations at intersections are evaluated using the performance measures of average vehicular delay, level of service (LOS), volume-to-capacity (v/c) ratio, and average and 95th percentile queue lengths.

LOS is a qualitative measure that describes operating conditions through letter designations, from A to F. It is defined for intersections in terms of average control delay per vehicle. LOS A indicates the most favorable condition, with minimum traffic delay. LOS F represents the worst condition where there is significant traffic delay. LOS D or better is typically considered desirable for peak-hour operation in urban and suburban settings. The delay designations for each LOS level differ slightly between signalized and unsignalized intersections due to driver expectations and behavior. Table 5 summarizes the LOS criteria for intersections as used in this analysis.

Table 5 – Intersection Level of Service Criteria

Level of Service	Average Control Delay (sec/veh)	
	Signalized	Unsignalized
A	0-10	0-10
B	>10-20	>10-15
C	>20-35	>15-25
D	>35-55	>25-35
E	>55-80	>35-50
F	>80	>50
Source: HCM 2000		

For signalized intersections, LOS is reported by lane group, by approach, and for the entire intersection. For unsignalized intersections, the analysis assumes that the traffic on the mainline is not affected by traffic on the side street. As such, an unsignalized intersection's LOS is generally reported for left-turns on the mainline and all side street movements, and an overall intersection LOS is not determined.

The v/c ratio is a measure of congestion at an intersection approach. The capacity of a facility is the maximum hourly rate at which persons or vehicles reasonably can be expected to traverse a point or a uniform section of a lane or roadway under prevailing roadway, traffic, and control conditions. A v/c ratio below one indicates that the intersection approach has adequate capacity to serve the arriving traffic demand. A v/c ratio that approaches or exceeds 1.0 indicates traffic congestion or poor operating conditions. In that situation, vehicles arrive faster than they can be served, so queue lengths can theoretically grow indefinitely, which is the unstable condition.

Since arrival volumes fluctuate throughout the peak hour, queue lengths vary. The average (50th percentile) queue length represents the maximum back of queue on a typical cycle for a signalized intersection. Average queue lengths are not reported for unsignalized intersections. The 95th percentile queue, reported for both signalized and unsignalized intersections, occurs with 95th percentile traffic volumes, and its length commonly denotes the farthest extent of the vehicle queue.

6.2 Capacity Analyses

We performed capacity analyses for the study intersections under 2020 Existing conditions, 2027 No-Build conditions, and 2027 Build conditions during the weekday morning and weekday evening peak hours using Trafficware's Synchro 10 software. Synchro uses, in part, the traffic operational analysis methodology of the Transportation Research Board's *Highway Capacity Manual* (HCM).² We generated the results of the capacity analyses using Synchro's Percentile Delay Method for delay, v/c ratio, and queue lengths, supported by HCM 2000 methodology for unsignalized intersection analysis. The Synchro output sheets for the capacity analyses are included in Appendix D.

6.2.1 2020 Existing Conditions Capacity Analysis

The first analysis evaluated traffic operations with 2020 existing traffic volumes under existing geometric conditions and signal timing/phasing. We derived peak hour factors (PHFs) and heavy vehicle percentages from the TMC data. We applied PHFs on an approach-by-approach basis, and we applied heavy vehicle percentages by lane group. Table 6 summarizes the capacity analysis results for the 2020 Existing conditions.

Table 6 – Capacity Analysis Summary: 2020 Existing Conditions

Location	Direction / Movement ^a	Weekday Morning Peak Hour					Weekday Evening Peak Hour				
		v/c Ratio ^b	Delay ^c	LOS	Queue ^d		v/c Ratio ^b	Delay ^c	LOS	Queue ^d	
					50th	95th				50th	95th
Alewife Brook Pkwy (Rt 16) and Broadway [signalized]	Broadway EB – LTR	1.03	95.8	F	~317	#443	0.99	84.9	F	286	#384
	Broadway WB – LTR	0.95	84.2	F	217	#327	0.91	77.4	E	203	#298
	Route 16 NB – LTR	0.71	39.6	D	222	290	1.16	119.5	F	~540	#677
	Route 16 SB – LTR	1.07	87.4	F	~559	#696	1.09	93.9	F	~553	#690
	Overall	1.07	78.9	E	-	-	1.16	97.9	F	-	-
Sunnyside Ave and Broadway [unsignalized]	Broadway EB – L	0.01	8.4	A	-	0	0.02	9.1	A	-	0
	Sunnyside Ave SB – LR	0.52	34.8	D	-	70	0.21	23.2	C	-	20
^a Direction: NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound; Movement: L = Left-turn, T = Through movement, R = Right-turn ^b Overall v/c ratio is the maximum v/c ratio among lane groups ^c Average vehicle delay (seconds) ^d 50th and 95th percentile queue lengths (feet) based upon average vehicle length of 25 feet ~ Volume exceeds capacity, queue is theoretically infinite; queue shown is maximum after two cycles # 95th percentile volume exceeds capacity, queue may be longer; queue shown is maximum after two cycles											

Under 2020 Existing conditions, the intersection of Alewife Brook Parkway and Broadway will operate at overall LOS E and F during the weekday morning and weekday evening peak hours, respectively. Extensive queuing and high v/c ratios are calculated at most approaches to the Alewife Brook Parkway/Broadway intersection with some approaches exceed 1.0 v/c ratio. At intersection of Sunnyside Avenue and Broadway, the eastbound left-turn will operate at LOS A during both peak hours; however, the southbound approach will operate at LOS D and C during the weekday morning and weekday evening peak hours, respectively. **Note, the westbound approach at the intersection of Sunnyside Avenue and Broadway is not represented on this table as the through and right turns are non-conflicting movements which will operate without delay.**

² *Highway Capacity Manual 2000 (HCM 2000)*, Transportation Research Board, Washington, D.C., 2000.

6.2.2 2027 No-Build Conditions Capacity Analysis

Under future No-Build conditions, we kept lane geometry, traffic control, and signal timing parameters the same as existing. We applied the future volumes determined in Section 4.3 (Figure 3) with the same heavy vehicle percentages and PHFs as existing. Table 7 summarizes the analysis results for 2027 No-Build conditions.

Table 7 – Capacity Analysis Summary: 2027 No-Build Conditions

Location	Direction / Movement ^a	Weekday Morning Peak Hour					Weekday Evening Peak Hour				
		v/c Ratio ^b	Delay ^c	LOS	Queue ^d		v/c Ratio ^b	Delay ^c	LOS	Queue ^d	
					50th	95th				50th	95th
Alewife Brook Pkwy (Rt 16) and Broadway [signalized]	Broadway EB – LTR	1.20	151.2	F	~421	#552	1.19	147.0	F	~414	#507
	Broadway WB – LTR	1.10	121.7	F	~285	#406	1.03	102.1	F	~256	#375
	Route 16 NB – LTR	0.93	58.5	E	291	#412	1.70	348.5	F	~791	#932
	Route 16 SB – LTR	1.34	194.3	F	~760	#899	1.45	242.3	F	~777	#917
	Overall	1.34	143.8	F	-	-	1.70	236.9	F	-	-
Sunnyside Ave and Broadway [unsignalized]	Broadway EB – L	0.01	8.6	A	-	0	0.02	9.5	A	-	2.5
	Sunnyside Ave SB – LR	0.75	64.4	F	-	125	0.60	50.4	F	-	82.5
^a Direction: NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound; Movement: L = Left-turn, T = Through movement, R = Right-turn ^b Overall v/c ratio is the maximum v/c ratio among lane groups ^c Average vehicle delay (seconds) ^d 50th and 95th percentile queue lengths (feet) based upon average vehicle length of 25 feet ~ Volume exceeds capacity, queue is theoretically infinite; queue shown is maximum after two cycles # 95th percentile volume exceeds capacity, queue may be longer; queue shown is maximum after two cycles											

Under 2027 No-Build conditions, all movements will experience an increase in v/c ratio, delay, and queue length except for the eastbound approach to the Sunnyside Avenue/Broadway intersection, which will continue to operate at LOS A during both peak hours. At the intersection of Alewife Brook Parkway and Broadway, the overall intersection will degrade from LOS E to F during the weekday morning peak hour, the northbound approach will degrade from LOS D to E during the weekday morning peak hour, and the westbound approach will degrade from LOS E to F during the weekday evening peak hour.

6.2.3 2027 Build Conditions Capacity Analysis

We performed capacity analyses for the proposed build conditions for the future development. Under these future Build conditions, we kept lane geometry, traffic control, and signal timing parameters the same as existing for all four study intersections. We applied the future volumes determined in Section 5.2 (Figure 5) with the same heavy vehicle percentages and PHFs as existing. Table 8 summarizes the analysis results for the 2027 Build conditions.

Table 8 – Capacity Analysis Summary: 2027 Build Conditions

Location	Direction / Movement ^a	Weekday Morning Peak Hour					Weekday Evening Peak Hour				
		v/c Ratio ^b	Delay ^c	LOS	Queue ^d		v/c Ratio ^b	Delay ^c	LOS	Queue ^d	
					50th	95th				50th	95th
Alewife Brook Pkwy (Rt 16) and Broadway [signalized]	Broadway EB – LTR	1.21	152.4	F	~422	#553	1.20	150.6	F	~420	#513
	Broadway WB – LTR	1.11	123.6	F	~288	#408	1.03	102.6	F	~257	#377
	Route 16 NB – LTR	0.93	58.7	E	291	#412	1.70	348.5	F	~791	#932
	Route 16 SB – LTR	1.34	194.6	F	~761	#901	1.45	242.8	F	~778	#918
	Overall	1.34	144.5	F	-	-	1.70	237.6	F	-	-
Sunnyside Ave and Broadway [unsignalized]	Broadway EB – L	0.02	8.7	A	-	0	0.02	9.6	A	-	2.5
	Sunnyside Ave SB – LR	0.80	72.3	F	-	137.5	0.67	58.5	F	-	100
Sunnyside Ave and Site Dwy [unsignalized]	Site Dwy EB – LR	0.00	8.6	A	-	0.00	0.01	8.6	A	-	0
	Sunnyside Ave NB – L	0.00	7.4	A	-	0.00	0	7.3	A	-	0
^a Direction: NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound; Movement: L = Left-turn, T = Through movement, R = Right-turn ^b Overall v/c ratio is the maximum v/c ratio among lane groups ^c Average vehicle delay (seconds) ^d 50th and 95th percentile queue lengths (feet) based upon average vehicle length of 25 feet ~ Volume exceeds capacity, queue is theoretically infinite; queue shown is maximum after two cycles # 95th percentile volume exceeds capacity, queue may be longer; queue shown is maximum after two cycles											

Under 2027 Build conditions, all movements will continue to operate at No-Build conditions. All movements at the intersection of Sunnyside Avenue and the Site Driveway will operate at LOS A. **Similar to the Sunnyside Avenue/Broadway intersection, the southbound approach at the intersection of Sunnyside Avenue and the Site Driveway is not represented on this table as the through and right turns are non-conflicting movements which will operate without delay.**



7 Conclusions and Recommendations

Nitsch Engineering has prepared this Traffic Impact Study (TIS) for the proposed two-building development at 10 Sunnyside Avenue in Arlington, Massachusetts.

We studied three intersections, one signalized and two unsignalized, to establish the impact the development would have on intersection traffic operations.

The crash data over the last three years available from MassDOT indicate that intersection of Alewife Brook Parkway and Broadway was found to have a motor vehicle crash rate above the MassDOT average for the District in which the Project is located (District 4). No fatalities were reported at any of the study area intersections over the five-year period reviewed. In addition, the Highway Safety Improvement Program (HSIP) database was reviewed. The intersection of Alewife Brook Parkway and Broadway is listed as a HSIP cluster in the most recent (2015-2017) HSIP cluster listing. The Broadway at Sunnyside Avenue intersection is not listed as a HSIP location and has a crash rate below the MassDOT average.

We collected turning movement counts at the three study intersections. We adjusted the counts upward to account for the COVID-19 pandemic's effect on traffic patterns to become our baseline Existing conditions traffic volumes. For future conditions, we projected the Existing conditions traffic volumes over a seven-year period to the horizon year 2027 using an annual growth rate of 2.0% based on expected regional growth to become our future No-Build conditions volumes. We estimated the quantity of vehicle trips the proposed development would generate based on Institute of Transportation Engineers (ITE) *Trip Generation, 10th Edition* criteria.

We performed a vehicle capacity analysis to compare the weekday morning and weekday evening peak hours of the 2020 Existing conditions, 2027 No-Build conditions, and 2027 Build conditions for each of the three study intersections. Under all conditions, the intersection of Alewife Brook Parkway and Broadway will operate poorly with most of the movements operating at LOS F. However, all movements for both intersections in Build condition will continue to operate at No-Build conditions with only minor increases in delay and queuing. The intersection of Sunnyside Avenue and the Site Driveway will operate at LOS A for all movements.

As the project is not anticipated to have a significant impact to traffic operations at the study intersections, no mitigation is recommended at this time.



APPENDIX CONTENTS

<u>Appendix</u>	<u>Description</u>
A	Traffic Count Data
B	Additional Developments' Trip Generation
C	Detailed Trip Generation
D	Capacity Analysis



Appendix A: Traffic Count Data



Location Map: 207732 Arlington, MA

Precision Data Industries, LLC 46 Morton Street, Framingham, MA 01702 ph: 508-875-0100 email: datarequests@pdillc.com



Client:
Nitsch Engineering

Engineer:
B. Zimolka

Site Code:
TBA

Date:
Thursday 12/3/2020

PDI Job #
207732

City, State:
Arlington, MA

PDI File #: **207732 A**
 Location: **N: Alewife Brook Parkway S: Alewife Brook Parkway**
 Location: **E: Broadway W: Broadway**
 City, State: **Somerville, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**
 Count Date: **Thursday, December 3, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:



Cars and Heavy Vehicles (Combined)

	Alewife Brook Parkway					Broadway					Alewife Brook Parkway					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:00 AM	10	179	0	0	189	3	26	19	0	48	14	84	1	0	99	7	26	15	0	48	384
7:15 AM	2	199	1	0	202	5	33	21	0	59	17	85	4	0	106	10	37	23	0	70	437
7:30 AM	10	177	0	0	187	1	30	35	0	66	15	94	3	0	112	9	36	21	0	66	431
7:45 AM	11	242	4	0	257	2	31	26	0	59	21	106	5	0	132	18	26	15	0	59	507
Total	33	797	5	0	835	11	120	101	0	232	67	369	13	0	449	44	125	74	0	243	1759
8:00 AM	14	186	10	0	210	8	17	26	0	51	22	101	5	0	128	7	37	16	0	60	449
8:15 AM	8	169	3	0	180	3	29	22	0	54	22	115	5	0	142	15	29	9	0	53	429
8:30 AM	5	174	2	0	181	3	24	25	0	52	19	110	4	0	133	10	27	19	0	56	422
8:45 AM	16	156	4	0	176	4	29	33	0	66	23	104	2	0	129	11	35	18	0	64	435
Total	43	685	19	0	747	18	99	106	0	223	86	430	16	0	532	43	128	62	0	233	1735
Grand Total	76	1482	24	0	1582	29	219	207	0	455	153	799	29	0	981	87	253	136	0	476	3494
Approach %	4.8	93.7	1.5	0.0		6.4	48.1	45.5	0.0		15.6	81.4	3.0	0.0		18.3	53.2	28.6	0.0		
Total %	2.2	42.4	0.7	0.0	45.3	0.8	6.3	5.9	0.0	13.0	4.4	22.9	0.8	0.0	28.1	2.5	7.2	3.9	0.0	13.6	
Exiting Leg Total	964					430					1776					324					3494
Cars	73	1466	24	0	1563	27	197	202	0	426	138	779	29	0	946	86	231	135	0	452	3387
% Cars	96.1	98.9	100.0	0.0	98.8	93.1	90.0	97.6	0.0	93.6	90.2	97.5	100.0	0.0	96.4	98.9	91.3	99.3	0.0	95.0	96.9
Exiting Leg Total	941					393					1754					299					3387
Heavy Vehicles	3	16	0	0	19	2	22	5	0	29	15	20	0	0	35	1	22	1	0	24	107
% Heavy Vehicles	3.9	1.1	0.0	0.0	1.2	6.9	10.0	2.4	0.0	6.4	9.8	2.5	0.0	0.0	3.6	1.1	8.7	0.7	0.0	5.0	3.1
Exiting Leg Total	23					37					22					25					107

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Alewife Brook Parkway					Broadway					Alewife Brook Parkway					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:15 AM	2	199	1	0	202	5	33	21	0	59	17	85	4	0	106	10	37	23	0	70	437
7:30 AM	10	177	0	0	187	1	30	35	0	66	15	94	3	0	112	9	36	21	0	66	431
7:45 AM	11	242	4	0	257	2	31	26	0	59	21	106	5	0	132	18	26	15	0	59	507
8:00 AM	14	186	10	0	210	8	17	26	0	51	22	101	5	0	128	7	37	16	0	60	449
Total Volume	37	804	15	0	856	16	111	108	0	235	75	386	17	0	478	44	136	75	0	255	1824
% Approach Total	4.3	93.9	1.8	0.0		6.8	47.2	46.0	0.0		15.7	80.8	3.6	0.0		17.3	53.3	29.4	0.0		
PHF	0.661	0.831	0.375	0.000	0.833	0.500	0.841	0.771	0.000	0.890	0.852	0.910	0.850	0.000	0.905	0.611	0.919	0.815	0.000	0.911	0.899
Cars	36	795	15	0	846	14	102	105	0	221	69	375	17	0	461	43	127	74	0	244	1772
Cars %	97.3	98.9	100.0	0.0	98.8	87.5	91.9	97.2	0.0	94.0	92.0	97.2	100.0	0.0	96.4	97.7	93.4	98.7	0.0	95.7	97.1
Heavy Vehicles	1	9	0	0	10	2	9	3	0	14	6	11	0	0	17	1	9	1	0	11	52
Heavy Vehicles %	2.7	1.1	0.0	0.0	1.2	12.5	8.1	2.8	0.0	6.0	8.0	2.8	0.0	0.0	3.6	2.3	6.6	1.3	0.0	4.3	2.9
Cars Enter Leg	36	795	15	0	846	14	102	105	0	221	69	375	17	0	461	43	127	74	0	244	1772
Heavy Enter Leg	1	9	0	0	10	2	9	3	0	14	6	11	0	0	17	1	9	1	0	11	52
Total Entering Leg	37	804	15	0	856	16	111	108	0	235	75	386	17	0	478	44	136	75	0	255	1824
Cars Exiting Leg	463					211					943					155					1772
Heavy Exiting Leg	14					15					13					10					52
Total Exiting Leg	477					226					956					165					1824

PDI File #: **207732 A**
 Location: **N: Alewife Brook Parkway S: Alewife Brook Parkway**
 Location: **E: Broadway W: Broadway**
 City, State: **Somerville, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**
 Count Date: **Thursday, December 3, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:



Cars

	Alewife Brook Parkway					Broadway					Alewife Brook Parkway					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:00 AM	9	176	0	0	185	3	23	19	0	45	11	80	1	0	92	7	24	15	0	46	368
7:15 AM	2	198	1	0	201	4	30	21	0	55	15	84	4	0	103	9	32	23	0	64	423
7:30 AM	10	175	0	0	185	1	28	33	0	62	12	91	3	0	106	9	34	21	0	64	417
7:45 AM	10	239	4	0	253	2	28	26	0	56	21	101	5	0	127	18	25	14	0	57	493
Total	31	788	5	0	824	10	109	99	0	218	59	356	13	0	428	43	115	73	0	231	1701
8:00 AM	14	183	10	0	207	7	16	25	0	48	21	99	5	0	125	7	36	16	0	59	439
8:15 AM	7	168	3	0	178	3	25	22	0	50	18	115	5	0	138	15	26	9	0	50	416
8:30 AM	5	174	2	0	181	3	20	23	0	46	18	108	4	0	130	10	21	19	0	50	407
8:45 AM	16	153	4	0	173	4	27	33	0	64	22	101	2	0	125	11	33	18	0	62	424
Total	42	678	19	0	739	17	88	103	0	208	79	423	16	0	518	43	116	62	0	221	1686
Grand Total	73	1466	24	0	1563	27	197	202	0	426	138	779	29	0	946	86	231	135	0	452	3387
Approach %	4.7	93.8	1.5	0.0		6.3	46.2	47.4	0.0		14.6	82.3	3.1	0.0		19.0	51.1	29.9	0.0		
Total %	2.2	43.3	0.7	0.0	46.1	0.8	5.8	6.0	0.0	12.6	4.1	23.0	0.9	0.0	27.9	2.5	6.8	4.0	0.0	13.3	
Exiting Leg Total	941					393					1754					299					3387

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Alewife Brook Parkway					Broadway					Alewife Brook Parkway					Broadway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:15 AM	2	198	1	0	201	4	30	21	0	55	15	84	4	0	103	9	32	23	0	64	423
7:30 AM	10	175	0	0	185	1	28	33	0	62	12	91	3	0	106	9	34	21	0	64	417
7:45 AM	10	239	4	0	253	2	28	26	0	56	21	101	5	0	127	18	25	14	0	57	493
8:00 AM	14	183	10	0	207	7	16	25	0	48	21	99	5	0	125	7	36	16	0	59	439
Total Volume	36	795	15	0	846	14	102	105	0	221	69	375	17	0	461	43	127	74	0	244	1772
% Approach Total	4.3	94.0	1.8	0.0		6.3	46.2	47.5	0.0		15.0	81.3	3.7	0.0		17.6	52.0	30.3	0.0		
PHF	0.643	0.832	0.375	0.000	0.836	0.500	0.850	0.795	0.000	0.891	0.821	0.928	0.850	0.000	0.907	0.597	0.882	0.804	0.000	0.953	0.899
Entering Leg	36	795	15	0	846	14	102	105	0	221	69	375	17	0	461	43	127	74	0	244	1772
Exiting Leg	463					211					943					155					1772
Total	1309					432					1404					399					3544

PDI File #: **207732 A**
 Location: **N: Alewife Brook Parkway S: Alewife Brook Parkway**
 Location: **E: Broadway W: Broadway**
 City, State: **Somerville, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**
 Count Date: **Thursday, December 3, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**



	Alewife Brook Parkway					Broadway					Alewife Brook Parkway					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:00 AM	1	3	0	0	4	0	3	0	0	3	3	4	0	0	7	0	2	0	0	2	16
7:15 AM	0	1	0	0	1	1	3	0	0	4	2	1	0	0	3	1	5	0	0	6	14
7:30 AM	0	2	0	0	2	0	2	2	0	4	3	3	0	0	6	0	2	0	0	2	14
7:45 AM	1	3	0	0	4	0	3	0	0	3	0	5	0	0	5	0	1	1	0	2	14
Total	2	9	0	0	11	1	11	2	0	14	8	13	0	0	21	1	10	1	0	12	58
8:00 AM	0	3	0	0	3	1	1	1	0	3	1	2	0	0	3	0	1	0	0	1	10
8:15 AM	1	1	0	0	2	0	4	0	0	4	4	0	0	0	4	0	3	0	0	3	13
8:30 AM	0	0	0	0	0	0	4	2	0	6	1	2	0	0	3	0	6	0	0	6	15
8:45 AM	0	3	0	0	3	0	2	0	0	2	1	3	0	0	4	0	2	0	0	2	11
Total	1	7	0	0	8	1	11	3	0	15	7	7	0	0	14	0	12	0	0	12	49
Grand Total	3	16	0	0	19	2	22	5	0	29	15	20	0	0	35	1	22	1	0	24	107
Approach %	15.8	84.2	0.0	0.0		6.9	75.9	17.2	0.0		42.9	57.1	0.0	0.0		4.2	91.7	4.2	0.0		
Total %	2.8	15.0	0.0	0.0	17.8	1.9	20.6	4.7	0.0	27.1	14.0	18.7	0.0	0.0	32.7	0.9	20.6	0.9	0.0	22.4	
Exiting Leg Total	23					37					22					25					107
Buses	1	2	0	0	3	0	10	3	0	13	1	2	0	0	3	0	12	0	0	12	31
% Buses	33.3	12.5	0.0	0.0	15.8	0.0	45.5	60.0	0.0	44.8	6.7	10.0	0.0	0.0	8.6	0.0	54.5	0.0	0.0	50.0	29.0
Exiting Leg Total	2					13					5					11					31
Single-Unit Trucks	2	13	0	0	15	2	11	2	0	15	13	17	0	0	30	1	6	1	0	8	68
% Single-Unit	66.7	81.3	0.0	0.0	78.9	100.0	50.0	40.0	0.0	51.7	86.7	85.0	0.0	0.0	85.7	100.0	27.3	100.0	0.0	33.3	63.6
Exiting Leg Total	20					19					16					13					68
Articulated Trucks	0	1	0	0	1	0	1	0	0	1	1	1	0	0	2	0	4	0	0	4	8
% Articulated	0.0	6.3	0.0	0.0	5.3	0.0	4.5	0.0	0.0	3.4	6.7	5.0	0.0	0.0	5.7	0.0	18.2	0.0	0.0	16.7	7.5
Exiting Leg Total	1					5					1					1					8

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Alewife Brook Parkway					Broadway					Alewife Brook Parkway					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:00 AM	1	3	0	0	4	0	3	0	0	3	3	4	0	0	7	0	2	0	0	2	16
7:15 AM	0	1	0	0	1	1	3	0	0	4	2	1	0	0	3	1	5	0	0	6	14
7:30 AM	0	2	0	0	2	0	2	2	0	4	3	3	0	0	6	0	2	0	0	2	14
7:45 AM	1	3	0	0	4	0	3	0	0	3	0	5	0	0	5	0	1	1	0	2	14
Total Volume	2	9	0	0	11	1	11	2	0	14	8	13	0	0	21	1	10	1	0	12	58
% Approach Total	18.2	81.8	0.0	0.0		7.1	78.6	14.3	0.0		38.1	61.9	0.0	0.0		8.3	83.3	8.3	0.0		
PHF	0.500	0.750	0.000	0.000	0.688	0.250	0.917	0.250	0.000	0.875	0.667	0.650	0.000	0.000	0.750	0.250	0.500	0.250	0.000	0.500	0.906
Buses	1	1	0	0	2	0	6	2	0	8	0	1	0	0	1	0	4	0	0	4	15
Buses %	50.0	11.1	0.0	0.0	18.2	0.0	54.5	100.0	0.0	57.1	0.0	7.7	0.0	0.0	4.8	0.0	40.0	0.0	0.0	33.3	25.9
Single-Unit Trucks	1	8	0	0	9	1	5	0	0	6	7	11	0	0	18	1	3	1	0	5	38
Single-Unit %	50.0	88.9	0.0	0.0	81.8	100.0	45.5	0.0	0.0	42.9	87.5	84.6	0.0	0.0	85.7	100.0	30.0	100.0	0.0	41.7	65.5
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	3	0	0	3	5
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	7.7	0.0	0.0	9.5	0.0	30.0	0.0	0.0	25.0	8.6
Buses	1	1	0	0	2	0	6	2	0	8	0	1	0	0	1	0	4	0	0	4	15
Single-Unit Trucks	1	8	0	0	9	1	5	0	0	6	7	11	0	0	18	1	3	1	0	5	38
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	3	0	0	3	5
Total Entering Leg	2	9	0	0	11	1	11	2	0	14	8	13	0	0	21	1	10	1	0	12	58
Buses	1					4					3					7					15
Single-Unit Trucks	13					10					9					6					38
Articulated Trucks	1					4					0					0					5
Total Exiting Leg	15					18					12					13					58

PDI File #: **207732 A**
 Location: **N: Alewife Brook Parkway S: Alewife Brook Parkway**
 Location: **E: Broadway W: Broadway**
 City, State: **Somerville, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**
 Count Date: **Thursday, December 3, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:



Buses

	Alewife Brook Parkway					Broadway					Alewife Brook Parkway					Broadway					Total	
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		
7:00 AM	0	1	0	0	1	0	3	0	0	3	0	0	0	0	0	0	1	0	0	0	1	5
7:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	1	2
7:30 AM	0	0	0	0	0	0	1	2	0	3	0	1	0	0	1	0	1	0	0	0	1	5
7:45 AM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	1	3
Total	1	1	0	0	2	0	6	2	0	8	0	1	0	0	1	0	4	0	0	0	4	15
8:00 AM	0	0	0	0	0	0	1	1	0	2	0	1	0	0	1	0	0	0	0	0	0	3
8:15 AM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	2	0	0	0	2	4
8:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4	0	0	0	4	5
8:45 AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	2	0	0	0	2	4
Total	0	1	0	0	1	0	4	1	0	5	1	1	0	0	2	0	8	0	0	0	8	16
Grand Total	1	2	0	0	3	0	10	3	0	13	1	2	0	0	3	0	12	0	0	0	12	31
Approach %	33.3	66.7	0.0	0.0		0.0	76.9	23.1	0.0		33.3	66.7	0.0	0.0		0.0	100.0	0.0	0.0			
Total %	3.2	6.5	0.0	0.0	9.7	0.0	32.3	9.7	0.0	41.9	3.2	6.5	0.0	0.0	9.7	0.0	38.7	0.0	0.0		38.7	
Exiting Leg Total	2					13					5					11					31	

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Alewife Brook Parkway					Broadway					Alewife Brook Parkway					Broadway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:00 AM	0	0	0	0	0	0	1	1	0	2	0	1	0	0	1	0	0	0	0	0	3
8:15 AM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	2	0	0	2	4
8:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4	0	0	4	5
8:45 AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	4
Total Volume	0	1	0	0	1	0	4	1	0	5	1	1	0	0	2	0	8	0	0	8	16
% Approach Total	0.0	100.0	0.0	0.0		0.0	80.0	20.0	0.0		50.0	50.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.250	0.000	1.000	0.250	0.000	0.625	0.250	0.250	0.000	0.000	0.500	0.000	0.500	0.000	0.000	0.500	0.800
Entering Leg	0	1	0	0	1	0	4	1	0	5	1	1	0	0	2	0	8	0	0	8	16
Exiting Leg	1					9					2					4					16
Total	2					14					4					12					32

PDI File #: **207732 A**
 Location: **N: Alewife Brook Parkway S: Alewife Brook Parkway**
 Location: **E: Broadway W: Broadway**
 City, State: **Somerville, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**
 Count Date: **Thursday, December 3, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:



Single-Unit Trucks

	Alewife Brook Parkway					Broadway					Alewife Brook Parkway					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:00 AM	1	2	0	0	3	0	0	0	0	0	2	4	0	0	6	0	1	0	0	1	10
7:15 AM	0	1	0	0	1	1	2	0	0	3	2	1	0	0	3	1	2	0	0	3	10
7:30 AM	0	2	0	0	2	0	1	0	0	1	3	2	0	0	5	0	0	0	0	0	8
7:45 AM	0	3	0	0	3	0	2	0	0	2	0	4	0	0	4	0	0	1	0	1	10
Total	1	8	0	0	9	1	5	0	0	6	7	11	0	0	18	1	3	1	0	5	38
8:00 AM	0	2	0	0	2	1	0	0	0	1	1	1	0	0	2	0	1	0	0	1	6
8:15 AM	1	1	0	0	2	0	2	0	0	2	3	0	0	0	3	0	1	0	0	1	8
8:30 AM	0	0	0	0	0	0	3	2	0	5	1	2	0	0	3	0	1	0	0	1	9
8:45 AM	0	2	0	0	2	0	1	0	0	1	1	3	0	0	4	0	0	0	0	0	7
Total	1	5	0	0	6	1	6	2	0	9	6	6	0	0	12	0	3	0	0	3	30
Grand Total	2	13	0	0	15	2	11	2	0	15	13	17	0	0	30	1	6	1	0	8	68
Approach %	13.3	86.7	0.0	0.0		13.3	73.3	13.3	0.0		43.3	56.7	0.0	0.0		12.5	75.0	12.5	0.0		
Total %	2.9	19.1	0.0	0.0	22.1	2.9	16.2	2.9	0.0	22.1	19.1	25.0	0.0	0.0	44.1	1.5	8.8	1.5	0.0	11.8	
Exiting Leg Total	20					19					16					13					68

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Alewife Brook Parkway					Broadway					Alewife Brook Parkway					Broadway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:00 AM	1	2	0	0	3	0	0	0	0	0	2	4	0	0	6	0	1	0	0	1	10
7:15 AM	0	1	0	0	1	1	2	0	0	3	2	1	0	0	3	1	2	0	0	3	10
7:30 AM	0	2	0	0	2	0	1	0	0	1	3	2	0	0	5	0	0	0	0	0	8
7:45 AM	0	3	0	0	3	0	2	0	0	2	0	4	0	0	4	0	0	1	0	1	10
Total Volume	1	8	0	0	9	1	5	0	0	6	7	11	0	0	18	1	3	1	0	5	38
% Approach Total	11.1	88.9	0.0	0.0		16.7	83.3	0.0	0.0		38.9	61.1	0.0	0.0		20.0	60.0	20.0	0.0		
PHF	0.250	0.667	0.000	0.000	0.750	0.250	0.625	0.000	0.000	0.500	0.583	0.688	0.000	0.000	0.750	0.250	0.375	0.250	0.000	0.417	0.950
Entering Leg	1	8	0	0	9	1	5	0	0	6	7	11	0	0	18	1	3	1	0	5	38
Exiting Leg	13					10					9					6					38
Total	22					16					27					11					76

PDI File #: **207732 A**
 Location: **N: Alewife Brook Parkway S: Alewife Brook Parkway**
 Location: **E: Broadway W: Broadway**
 City, State: **Somerville, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**
 Count Date: **Thursday, December 3, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:



Articulated Trucks

	Alewife Brook Parkway					Broadway					Alewife Brook Parkway					Broadway					Total	
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	3	0	0	3	5	
8:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	1	3
Grand Total	0	1	0	0	1	0	1	0	0	1	1	1	0	0	2	0	4	0	0	4	8	
Approach %	0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		50.0	50.0	0.0	0.0		0.0	100.0	0.0	0.0			
Total %	0.0	12.5	0.0	0.0	12.5	0.0	12.5	0.0	0.0	12.5	12.5	12.5	0.0	0.0	25.0	0.0	50.0	0.0	0.0	50.0		
Exiting Leg Total	1					5					1					1					8	

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Alewife Brook Parkway					Broadway					Alewife Brook Parkway					Broadway						
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	3	0	0	3	5	
% Approach Total	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		50.0	50.0	0.0	0.0		0.0	100.0	0.0	0.0			
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.500	0.000	0.375	0.000	0.000	0.375	0.625	
Entering Leg	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	3	0	0	3	5	
Exiting Leg	1					4					0					0					5	
Total	1					4					2					3					10	

PDI File #: **207732 A**
 Location: **N: Alewife Brook Parkway S: Alewife Brook Parkway**
 Location: **E: Broadway W: Broadway**
 City, State: **Somerville, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**
 Count Date: **Thursday, December 3, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:



Bicycles (on Roadway and Crosswalks)

	Alewife Brook Parkway							Broadway							Alewife Brook Parkway							Broadway							Total		
	from North							from East							from South							from West									
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total			
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2		
7:15 AM	0	0	0	0	0	0	1	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	2	3	5	
7:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	5	6	7	
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	2	3	
Total	0	0	0	0	0	0	1	1	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	4	9	13		17	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		1	
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	2	3	
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3	
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	4	4	
Total	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5	0	3	2	10	11
Grand Total	0	0	0	0	0	0	1	1	0	4	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	5	0	7	11	23	28
Approach %	0.0	0.0	0.0	0.0	0.0	100.0			0.0	100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	21.7	0.0	0.0	30.4	47.8			
Total %	0.0	0.0	0.0	0.0	0.0	3.6	3.6		0.0	14.3	0.0	0.0	0.0	0.0	14.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.9	0.0	0.0	25.0	39.3	82.1
Exiting Leg Total	1							5							0							22							28		

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Alewife Brook Parkway							Broadway							Alewife Brook Parkway							Broadway							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2
7:15 AM	0	0	0	0	0	1	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	2	3	5
7:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	5	6	7
7:45 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	2	3
Total Volume	0	0	0	0	0	1	1	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	4	9	13	17
% Approach Total	0.0	0.0	0.0	0.0	0.0	100.0		0.0	100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.8	69.2		
PHF	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.750	0.000	0.000	0.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.450	0.542	0.607
Entering Leg	0	0	0	0	0	1	1	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	4	9	13	17
Exiting Leg	1							0							0							16							17
Total	2							3							0							29							34

PDI File #: **207732 A**
 Location: **N: Alewife Brook Parkway S: Alewife Brook Parkway**
 Location: **E: Broadway W: Broadway**
 City, State: **Somerville, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**
 Count Date: **Thursday, December 3, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:



Pedestrians

	Alewife Brook Parkway							Broadway							Alewife Brook Parkway							Broadway							Total			
	from North							from East							from South							from West										
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total				
7:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	5	0	0	0	0	0	1	1	2	8
7:15 AM	0	0	0	0	2	2	4	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	4	0	4	10	
7:30 AM	0	0	0	0	6	1	7	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	1	0	1	12	
7:45 AM	0	0	0	0	4	4	8	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	4	0	4	15		
Total	0	0	0	0	12	8	20	0	0	0	0	0	0	0	0	0	0	0	0	5	9	14	0	0	0	0	10	1	11	45		
8:00 AM	0	0	0	0	6	1	7	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	4	2	6	17		
8:15 AM	0	0	0	0	2	3	5	0	0	0	0	0	0	2	2	0	0	0	0	3	2	5	0	0	0	0	0	0	4	4	16	
8:30 AM	0	0	0	0	3	1	4	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	3	1	4	11		
8:45 AM	0	0	0	0	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	7		
Total	0	0	0	0	13	6	19	0	0	0	0	0	0	2	2	0	0	0	0	3	13	16	0	0	0	0	7	7	14	51		
Grand Total	0	0	0	0	25	14	39	0	0	0	0	0	2	2	0	0	0	0	8	22	30	0	0	0	0	17	8	25	96			
Approach %	0	0	0	0	64.1	35.9		0	0	0	0	0	100		0	0	0	0	26.7	73.3		0	0	0	0	68	32					
Total %	0	0	0	0	26	14.6	40.6	0	0	0	0	0	2.08	2.08	0	0	0	0	8.33	22.9	31.3	0	0	0	0	17.7	8.33	26				
Exiting Leg Total	39							2							30							25							96			

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Alewife Brook Parkway							Broadway							Alewife Brook Parkway							Broadway							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	0	0	0	0	6	1	7	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	1	0	1	12
7:45 AM	0	0	0	0	4	4	8	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	4	0	4	15
8:00 AM	0	0	0	0	6	1	7	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	4	2	6	17
8:15 AM	0	0	0	0	2	3	5	0	0	0	0	0	2	2	0	0	0	0	3	2	5	0	0	0	0	0	4	4	16
Total Volume	0	0	0	0	18	9	27	0	0	0	0	0	2	2	0	0	0	0	6	10	16	0	0	0	0	9	6	15	60
% Approach Total	0.0	0.0	0.0	0.0	66.7	33.3		0.0	0.0	0.0	0.0	0.0	100.0		0.0	0.0	0.0	0.0	37.5	62.5		0.0	0.0	0.0	0.0	60.0	40.0		
PHF	0.000	0.000	0.000	0.000	0.750	0.563	0.844	0.000	0.000	0.000	0.000	0.250	0.250		0.000	0.000	0.000	0.000	0.500	0.625	0.800	0.000	0.000	0.000	0.000	0.563	0.375	0.625	0.882
Entering Leg	0	0	0	0	18	9	27	0	0	0	0	0	2	2	0	0	0	0	6	10	16	0	0	0	0	9	6	15	60
Exiting Leg	27							2							16							15							60
Total	54							4							32							30							120

PDI File #: **207732 A**
 Location: **N: Alewife Brook Parkway S: Alewife Brook Parkway**
 Location: **E: Broadway W: Broadway**
 City, State: **Somerville, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**
 Count Date: **Thursday, December 3, 2020**
 Start Time: **4:00 PM**
 End Time: **6:00 PM**
 Class:



Cars and Heavy Vehicles (Combined)

	Alewife Brook Parkway					Broadway					Alewife Brook Parkway					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:00 PM	16	147	5	0	168	5	33	30	0	68	40	164	3	0	207	6	37	29	0	72	515
4:15 PM	19	135	2	0	156	9	34	22	0	65	30	145	4	0	179	15	41	27	0	83	483
4:30 PM	12	130	3	0	145	3	31	20	0	54	32	189	6	0	227	7	48	32	0	87	513
4:45 PM	14	134	3	0	151	9	42	27	0	78	43	149	7	0	199	5	45	27	0	77	505
Total	61	546	13	0	620	26	140	99	0	265	145	647	20	0	812	33	171	115	0	319	2016
5:00 PM	19	109	1	0	129	5	29	24	0	58	40	149	2	0	191	4	42	36	0	82	460
5:15 PM	15	125	5	0	145	5	26	22	0	53	37	155	5	0	197	6	37	42	0	85	480
5:30 PM	10	154	9	0	173	3	45	21	0	69	48	155	2	0	205	6	47	28	0	81	528
5:45 PM	18	120	2	0	140	11	39	16	0	66	43	156	5	0	204	12	36	27	0	75	485
Total	62	508	17	0	587	24	139	83	0	246	168	615	14	0	797	28	162	133	0	323	1953
Grand Total	123	1054	30	0	1207	50	279	182	0	511	313	1262	34	0	1609	61	333	248	0	642	3969
Approach %	10.2	87.3	2.5	0.0		9.8	54.6	35.6	0.0		19.5	78.4	2.1	0.0		9.5	51.9	38.6	0.0		
Total %	3.1	26.6	0.8	0.0	30.4	1.3	7.0	4.6	0.0	12.9	7.9	31.8	0.9	0.0	40.5	1.5	8.4	6.2	0.0	16.2	
Exiting Leg Total	1560					676					1297					436					3969
Cars	123	1051	29	0	1203	48	266	178	0	492	312	1252	34	0	1598	61	325	248	0	634	3927
% Cars	100.0	99.7	96.7	0.0	99.7	96.0	95.3	97.8	0.0	96.3	99.7	99.2	100.0	0.0	99.3	100.0	97.6	100.0	0.0	98.8	98.9
Exiting Leg Total	1548					666					1290					423					3927
Heavy Vehicles	0	3	1	0	4	2	13	4	0	19	1	10	0	0	11	0	8	0	0	8	42
% Heavy Vehicles	0.0	0.3	3.3	0.0	0.3	4.0	4.7	2.2	0.0	3.7	0.3	0.8	0.0	0.0	0.7	0.0	2.4	0.0	0.0	1.2	1.1
Exiting Leg Total	12					10					7					13					42

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Alewife Brook Parkway					Broadway					Alewife Brook Parkway					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:00 PM	16	147	5	0	168	5	33	30	0	68	40	164	3	0	207	6	37	29	0	72	515
4:15 PM	19	135	2	0	156	9	34	22	0	65	30	145	4	0	179	15	41	27	0	83	483
4:30 PM	12	130	3	0	145	3	31	20	0	54	32	189	6	0	227	7	48	32	0	87	513
4:45 PM	14	134	3	0	151	9	42	27	0	78	43	149	7	0	199	5	45	27	0	77	505
Total Volume	61	546	13	0	620	26	140	99	0	265	145	647	20	0	812	33	171	115	0	319	2016
% Approach Total	9.8	88.1	2.1	0.0		9.8	52.8	37.4	0.0		17.9	79.7	2.5	0.0		10.3	53.6	36.1	0.0		
PHF	0.803	0.929	0.650	0.000	0.923	0.722	0.833	0.825	0.000	0.849	0.843	0.856	0.714	0.000	0.894	0.550	0.891	0.898	0.000	0.917	0.979
Cars	61	544	12	0	617	24	131	96	0	251	144	642	20	0	806	33	166	115	0	314	1988
Cars %	100.0	99.6	92.3	0.0	99.5	92.3	93.6	97.0	0.0	94.7	99.3	99.2	100.0	0.0	99.3	100.0	97.1	100.0	0.0	98.4	98.6
Heavy Vehicles	0	2	1	0	3	2	9	3	0	14	1	5	0	0	6	0	5	0	0	5	28
Heavy Vehicles %	0.0	0.4	7.7	0.0	0.5	7.7	6.4	3.0	0.0	5.3	0.7	0.8	0.0	0.0	0.7	0.0	2.9	0.0	0.0	1.6	1.4
Cars Enter Leg	61	544	12	0	617	24	131	96	0	251	144	642	20	0	806	33	166	115	0	314	1988
Heavy Enter Leg	0	2	1	0	3	2	9	3	0	14	1	5	0	0	6	0	5	0	0	5	28
Total Entering Leg	61	546	13	0	620	26	140	99	0	265	145	647	20	0	812	33	171	115	0	319	2016
Cars Exiting Leg	781					322					673					212					1988
Heavy Exiting Leg	7					7					5					9					28
Total Exiting Leg	788					329					678					221					2016

PDI File #: **207732 A**
 Location: **N: Alewife Brook Parkway S: Alewife Brook Parkway**
 Location: **E: Broadway W: Broadway**
 City, State: **Somerville, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**
 Count Date: **Thursday, December 3, 2020**
 Start Time: **4:00 PM**
 End Time: **6:00 PM**
 Class:



Cars

	Alewife Brook Parkway					Broadway					Alewife Brook Parkway					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:00 PM	16	147	5	0	168	5	29	28	0	62	39	163	3	0	205	6	36	29	0	71	506
4:15 PM	19	134	1	0	154	9	33	21	0	63	30	145	4	0	179	15	39	27	0	81	477
4:30 PM	12	129	3	0	144	2	28	20	0	50	32	185	6	0	223	7	47	32	0	86	503
4:45 PM	14	134	3	0	151	8	41	27	0	76	43	149	7	0	199	5	44	27	0	76	502
Total	61	544	12	0	617	24	131	96	0	251	144	642	20	0	806	33	166	115	0	314	1988
5:00 PM	19	109	1	0	129	5	28	24	0	57	40	148	2	0	190	4	41	36	0	81	457
5:15 PM	15	125	5	0	145	5	26	21	0	52	37	154	5	0	196	6	36	42	0	84	477
5:30 PM	10	154	9	0	173	3	43	21	0	67	48	154	2	0	204	6	46	28	0	80	524
5:45 PM	18	119	2	0	139	11	38	16	0	65	43	154	5	0	202	12	36	27	0	75	481
Total	62	507	17	0	586	24	135	82	0	241	168	610	14	0	792	28	159	133	0	320	1939
Grand Total	123	1051	29	0	1203	48	266	178	0	492	312	1252	34	0	1598	61	325	248	0	634	3927
Approach %	10.2	87.4	2.4	0.0		9.8	54.1	36.2	0.0		19.5	78.3	2.1	0.0		9.6	51.3	39.1	0.0		
Total %	3.1	26.8	0.7	0.0	30.6	1.2	6.8	4.5	0.0	12.5	7.9	31.9	0.9	0.0	40.7	1.6	8.3	6.3	0.0	16.1	
Exiting Leg Total	1548					666					1290					423					3927

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Alewife Brook Parkway					Broadway					Alewife Brook Parkway					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:00 PM	16	147	5	0	168	5	29	28	0	62	39	163	3	0	205	6	36	29	0	71	506
4:15 PM	19	134	1	0	154	9	33	21	0	63	30	145	4	0	179	15	39	27	0	81	477
4:30 PM	12	129	3	0	144	2	28	20	0	50	32	185	6	0	223	7	47	32	0	86	503
4:45 PM	14	134	3	0	151	8	41	27	0	76	43	149	7	0	199	5	44	27	0	76	502
Total Volume	61	544	12	0	617	24	131	96	0	251	144	642	20	0	806	33	166	115	0	314	1988
% Approach Total	9.9	88.2	1.9	0.0		9.6	52.2	38.2	0.0		17.9	79.7	2.5	0.0		10.5	52.9	36.6	0.0		
PHF	0.803	0.925	0.600	0.000	0.918	0.667	0.799	0.857	0.000	0.826	0.837	0.868	0.714	0.000	0.904	0.550	0.883	0.898	0.000	0.913	0.982
Entering Leg	61	544	12	0	617	24	131	96	0	251	144	642	20	0	806	33	166	115	0	314	1988
Exiting Leg	781					322					673					212					1988
Total	1398					573					1479					526					3976

PDI File #: **207732 A**
 Location: **N: Alewife Brook Parkway S: Alewife Brook Parkway**
 Location: **E: Broadway W: Broadway**
 City, State: **Somerville, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**
 Count Date: **Thursday, December 3, 2020**
 Start Time: **4:00 PM**
 End Time: **6:00 PM**
 Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**



	Alewife Brook Parkway					Broadway					Alewife Brook Parkway					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:00 PM	0	0	0	0	0	0	4	2	0	6	1	1	0	0	2	0	1	0	0	1	9
4:15 PM	0	1	1	0	2	0	1	1	0	2	0	0	0	0	0	0	2	0	0	2	6
4:30 PM	0	1	0	0	1	1	3	0	0	4	0	4	0	0	4	0	1	0	0	1	10
4:45 PM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	3
Total	0	2	1	0	3	2	9	3	0	14	1	5	0	0	6	0	5	0	0	5	28
5:00 PM	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	3
5:15 PM	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	1	0	0	1	3
5:30 PM	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	0	1	0	0	1	4
5:45 PM	0	1	0	0	1	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	4
Total	0	1	0	0	1	0	4	1	0	5	0	5	0	0	5	0	3	0	0	3	14
Grand Total	0	3	1	0	4	2	13	4	0	19	1	10	0	0	11	0	8	0	0	8	42
Approach %	0.0	75.0	25.0	0.0		10.5	68.4	21.1	0.0		9.1	90.9	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	7.1	2.4	0.0	9.5	4.8	31.0	9.5	0.0	45.2	2.4	23.8	0.0	0.0	26.2	0.0	19.0	0.0	0.0	19.0	
Exiting Leg Total	12					10					7					13					42
Buses	0	0	0	0	0	0	9	2	0	11	1	1	0	0	2	0	6	0	0	6	19
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	69.2	50.0	0.0	57.9	100.0	10.0	0.0	0.0	18.2	0.0	75.0	0.0	0.0	75.0	45.2
Exiting Leg Total	1					7					2					9					19
Single-Unit Trucks	0	3	1	0	4	2	2	2	0	6	0	8	0	0	8	0	1	0	0	1	19
% Single-Unit	0.0	100.0	100.0	0.0	100.0	100.0	15.4	50.0	0.0	31.6	0.0	80.0	0.0	0.0	72.7	0.0	12.5	0.0	0.0	12.5	45.2
Exiting Leg Total	10					2					5					2					19
Articulated Trucks	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	0	1	0	0	1	4
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	15.4	0.0	0.0	10.5	0.0	10.0	0.0	0.0	9.1	0.0	12.5	0.0	0.0	12.5	9.5
Exiting Leg Total	1					1					0					2					4

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Alewife Brook Parkway					Broadway					Alewife Brook Parkway					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:00 PM	0	0	0	0	0	0	4	2	0	6	1	1	0	0	2	0	1	0	0	1	9
4:15 PM	0	1	1	0	2	0	1	1	0	2	0	0	0	0	0	0	2	0	0	2	6
4:30 PM	0	1	0	0	1	1	3	0	0	4	0	4	0	0	4	0	1	0	0	1	10
4:45 PM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	3
Total Volume	0	2	1	0	3	2	9	3	0	14	1	5	0	0	6	0	5	0	0	5	28
% Approach Total	0.0	66.7	33.3	0.0		14.3	64.3	21.4	0.0		16.7	83.3	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.500	0.250	0.000	0.375	0.500	0.563	0.375	0.000	0.583	0.250	0.313	0.000	0.000	0.375	0.000	0.625	0.000	0.000	0.625	0.700
Buses	0	0	0	0	0	0	6	1	0	7	1	0	0	0	1	0	3	0	0	3	11
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	66.7	33.3	0.0	50.0	100.0	0.0	0.0	0.0	16.7	0.0	60.0	0.0	0.0	60.0	39.3
Single-Unit Trucks	0	2	1	0	3	2	1	2	0	5	0	5	0	0	5	0	1	0	0	1	14
Single-Unit %	0.0	100.0	100.0	0.0	100.0	100.0	11.1	66.7	0.0	35.7	0.0	100.0	0.0	0.0	83.3	0.0	20.0	0.0	0.0	20.0	50.0
Articulated Trucks	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	22.2	0.0	0.0	14.3	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	20.0	10.7
Buses	0	0	0	0	0	0	6	1	0	7	1	0	0	0	1	0	3	0	0	3	11
Single-Unit Trucks	0	2	1	0	3	2	1	2	0	5	0	5	0	0	5	0	1	0	0	1	14
Articulated Trucks	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
Total Entering Leg	0	2	1	0	3	2	9	3	0	14	1	5	0	0	6	0	5	0	0	5	28
Buses	0					4					1					6					11
Single-Unit Trucks	7					2					4					1					14
Articulated Trucks	0					1					0					2					3
Total Exiting Leg	7					7					5					9					28

PDI File #: **207732 A**
 Location: **N: Alewife Brook Parkway S: Alewife Brook Parkway**
 Location: **E: Broadway W: Broadway**
 City, State: **Somerville, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**
 Count Date: **Thursday, December 3, 2020**
 Start Time: **4:00 PM**
 End Time: **6:00 PM**
 Class:



Buses

	Alewife Brook Parkway					Broadway					Alewife Brook Parkway					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:00 PM	0	0	0	0	0	0	3	1	0	4	1	0	0	0	1	0	1	0	0	1	6
4:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
4:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	6	1	0	7	1	0	0	0	1	0	3	0	0	3	11
5:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
5:15 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	2
5:30 PM	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	3
5:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	3	1	0	4	0	1	0	0	1	0	3	0	0	3	8
Grand Total	0	0	0	0	0	0	9	2	0	11	1	1	0	0	2	0	6	0	0	6	19
Approach %	0.0	0.0	0.0	0.0		0.0	81.8	18.2	0.0		50.0	50.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	47.4	10.5	0.0	57.9	5.3	5.3	0.0	0.0	10.5	0.0	31.6	0.0	0.0	31.6	
Exiting Leg Total	1					7					2					9					19

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Alewife Brook Parkway					Broadway					Alewife Brook Parkway					Broadway						
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		Total
4:00 PM	0	0	0	0	0	0	3	1	0	4	1	0	0	0	1	0	1	0	0	1	6	
4:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2	
4:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2	
4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	
Total Volume	0	0	0	0	0	0	6	1	0	7	1	0	0	0	1	0	3	0	0	3	11	
% Approach Total	0.0	0.0	0.0	0.0		0.0	85.7	14.3	0.0		100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0			
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.250	0.000	0.438	0.250	0.000	0.000	0.000	0.250	0.000	0.750	0.000	0.000	0.750	0.458	
Entering Leg	0	0	0	0	0	0	6	1	0	7	1	0	0	0	1	0	3	0	0	3	11	
Exiting Leg						0					4					1					6	11
Total	0					11					2					9					22	

PDI File #: **207732 A**
 Location: **N: Alewife Brook Parkway S: Alewife Brook Parkway**
 Location: **E: Broadway W: Broadway**
 City, State: **Somerville, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**
 Count Date: **Thursday, December 3, 2020**
 Start Time: **4:00 PM**
 End Time: **6:00 PM**
 Class:



Single-Unit Trucks

	Alewife Brook Parkway					Broadway					Alewife Brook Parkway					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:00 PM	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	2
4:15 PM	0	1	1	0	2	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	4
4:30 PM	0	1	0	0	1	1	1	0	0	2	0	4	0	0	4	0	0	0	0	0	7
4:45 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	2	1	0	3	2	1	2	0	5	0	5	0	0	5	0	1	0	0	1	14
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
Total	0	1	0	0	1	0	1	0	0	1	0	3	0	0	3	0	0	0	0	0	5
Grand Total	0	3	1	0	4	2	2	2	0	6	0	8	0	0	8	0	1	0	0	1	19
Approach %	0.0	75.0	25.0	0.0		33.3	33.3	33.3	0.0		0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	15.8	5.3	0.0	21.1	10.5	10.5	10.5	0.0	31.6	0.0	42.1	0.0	0.0	42.1	0.0	5.3	0.0	0.0	5.3	
Exiting Leg Total	10					2					5					2					19

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Alewife Brook Parkway					Broadway					Alewife Brook Parkway					Broadway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:00 PM	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	2
4:15 PM	0	1	1	0	2	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	4
4:30 PM	0	1	0	0	1	1	1	0	0	2	0	4	0	0	4	0	0	0	0	0	7
4:45 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	2	1	0	3	2	1	2	0	5	0	5	0	0	5	0	1	0	0	1	14
% Approach Total	0.0	66.7	33.3	0.0		40.0	20.0	40.0	0.0		0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.500	0.250	0.000	0.375	0.500	0.250	0.500	0.000	0.625	0.000	0.313	0.000	0.000	0.313	0.000	0.250	0.000	0.000	0.250	0.500
Entering Leg	0	2	1	0	3	2	1	2	0	5	0	5	0	0	5	0	1	0	0	1	14
Exiting Leg	7					2					4					1					14
Total	10					7					9					2					28

PDI File #: **207732 A**
 Location: **N: Alewife Brook Parkway S: Alewife Brook Parkway**
 Location: **E: Broadway W: Broadway**
 City, State: **Somerville, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**
 Count Date: **Thursday, December 3, 2020**
 Start Time: **4:00 PM**
 End Time: **6:00 PM**
 Class:



Articulated Trucks

	Alewife Brook Parkway					Broadway					Alewife Brook Parkway					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Grand Total	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	0	1	0	0	1	4
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	50.0	0.0	25.0	0.0	0.0	25.0	0.0	25.0	0.0	0.0	25.0	
Exiting Leg Total	1					1					0					2					4

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Alewife Brook Parkway					Broadway					Alewife Brook Parkway					Broadway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total Volume	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.750
Entering Leg	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
Exiting Leg	0					1					0					2					3
Total	0					3					0					3					

PDI File #: **207732 A**
 Location: **N: Alewife Brook Parkway S: Alewife Brook Parkway**
 Location: **E: Broadway W: Broadway**
 City, State: **Somerville, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**
 Count Date: **Thursday, December 3, 2020**
 Start Time: **4:00 PM**
 End Time: **6:00 PM**



Class: **Bicycles (on Roadway and Crosswalks)**

	Alewife Brook Parkway							Broadway							Alewife Brook Parkway							Broadway							Total	
	from North							from East							from South							from West								
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total		
4:00 PM	0	0	0	0	0	1	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	0	4	4	
4:30 PM	0	0	0	0	1	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
4:45 PM	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	3	4	
Total	0	0	0	0	2	1	3	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	3	0	0	4	1	8	13	
5:00 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	2	1	0	0	0	0	0	0	1	0	1	0	0	0	0	1	4
5:15 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	3	
5:30 PM	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	4	
5:45 PM	0	0	0	0	0	1	1	1	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3	1	4	7	
Total	0	0	0	0	1	3	4	1	3	0	0	0	0	4	1	0	0	0	0	0	0	1	0	2	0	0	5	2	9	18
Grand Total	0	0	0	0	3	4	7	1	5	0	0	0	0	6	1	0	0	0	0	0	1	0	5	0	0	9	3	17	31	
Approach %	0.0	0.0	0.0	0.0	42.9	57.1		16.7	83.3	0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0	0.0		0.0	29.4	0.0	0.0	52.9	17.6			
Total %	0.0	0.0	0.0	0.0	9.7	12.9	22.6	3.2	16.1	0.0	0.0	0.0	0.0	19.4	3.2	0.0	0.0	0.0	0.0	0.0	3.2	0.0	16.1	0.0	0.0	29.0	9.7	54.8		
Exiting Leg Total	8							6							0							17							31	

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Alewife Brook Parkway							Broadway							Alewife Brook Parkway							Broadway							Total	
	from North							from East							from South							from West								
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total		
5:00 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	2	1	0	0	0	0	0	0	1	0	1	0	0	0	0	1	4
5:15 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	3	
5:30 PM	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	4	
5:45 PM	0	0	0	0	0	1	1	1	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3	1	4	7	
Total Volume	0	0	0	0	1	3	4	1	3	0	0	0	0	4	1	0	0	0	0	0	1	0	2	0	0	5	2	9	18	
% Approach Total	0.0	0.0	0.0	0.0	25.0	75.0		25.0	75.0	0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0	0.0		0.0	22.2	0.0	0.0	55.6	22.2			
PHF	0.000	0.000	0.000	0.000	0.250	0.750	0.500	0.250	0.375	0.000	0.000	0.000	0.000	0.500	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.500	0.000	0.000	0.417	0.500	0.563		0.643	
Entering Leg	0	0	0	0	1	3	4	1	3	0	0	0	0	4	1	0	0	0	0	0	1	0	2	0	0	5	2	9	18	
Exiting Leg	5							3							0							10								
Total	9							7							1							19								

PDI File #: **207732 A**
 Location: **N: Alewife Brook Parkway S: Alewife Brook Parkway**
 Location: **E: Broadway W: Broadway**
 City, State: **Somerville, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**
 Count Date: **Thursday, December 3, 2020**
 Start Time: **4:00 PM**
 End Time: **6:00 PM**
 Class:



Pedestrians

	Alewife Brook Parkway							Broadway							Alewife Brook Parkway							Broadway							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:00 PM	0	0	0	0	5	4	9	0	0	0	0	0	0	0	0	0	0	0	1	2	3	0	0	0	0	4	6	10	22
4:15 PM	0	0	0	0	9	5	14	0	0	0	0	0	1	1	0	0	0	0	1	2	3	0	0	0	0	2	1	3	21
4:30 PM	0	0	0	0	2	5	7	0	0	0	0	0	0	0	0	0	0	0	3	2	5	0	0	0	0	5	3	8	20
4:45 PM	0	0	0	0	5	1	6	0	0	0	0	0	1	1	0	0	0	0	3	2	5	0	0	0	0	0	0	0	12
Total	0	0	0	0	21	15	36	0	0	0	0	0	2	2	0	0	0	0	8	8	16	0	0	0	0	11	10	21	75
5:00 PM	0	0	0	0	14	3	17	0	0	0	0	1	0	1	0	0	0	0	1	3	4	0	0	0	0	1	3	4	26
5:15 PM	0	0	0	0	3	9	12	0	0	0	0	0	0	0	0	0	0	0	2	1	3	0	0	0	0	0	4	4	19
5:30 PM	0	0	0	0	4	5	9	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	5	0	5	15
5:45 PM	0	0	0	0	5	6	11	0	0	0	0	2	0	2	0	0	0	0	4	0	4	0	0	0	0	2	0	2	19
Total	0	0	0	0	26	23	49	0	0	0	0	3	1	4	0	0	0	0	7	4	11	0	0	0	0	8	7	15	79
Grand Total	0	0	0	0	47	38	85	0	0	0	0	3	3	6	0	0	0	0	15	12	27	0	0	0	0	19	17	36	154
Approach %	0	0	0	0	55.3	44.7		0	0	0	0	50	50		0	0	0	0	55.6	44.4		0	0	0	0	52.8	47.2		
Total %	0	0	0	0	30.5	24.7	55.2	0	0	0	0	1.95	1.95	3.9	0	0	0	0	9.74	7.79	17.5	0	0	0	0	12.3	11	23.4	
Exiting Leg Total	85							6							27							36							154

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	Alewife Brook Parkway							Broadway							Alewife Brook Parkway							Broadway							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:15 PM	0	0	0	0	9	5	14	0	0	0	0	0	1	1	0	0	0	0	1	2	3	0	0	0	0	2	1	3	21
4:30 PM	0	0	0	0	2	5	7	0	0	0	0	0	0	0	0	0	0	0	3	2	5	0	0	0	0	5	3	8	20
4:45 PM	0	0	0	0	5	1	6	0	0	0	0	0	1	1	0	0	0	0	3	2	5	0	0	0	0	0	0	0	12
5:00 PM	0	0	0	0	14	3	17	0	0	0	0	1	0	1	0	0	0	0	1	3	4	0	0	0	0	1	3	4	26
Total Volume	0	0	0	0	30	14	44	0	0	0	0	1	2	3	0	0	0	0	8	9	17	0	0	0	0	8	7	15	79
% Approach Total	0.0	0.0	0.0	0.0	68.2	31.8		0.0	0.0	0.0	0.0	33.3	66.7		0.0	0.0	0.0	0.0	47.1	52.9		0.0	0.0	0.0	0.0	53.3	46.7		
PHF	0.000	0.000	0.000	0.000	0.536	0.700	0.647	0.000	0.000	0.000	0.000	0.250	0.500	0.750	0.000	0.000	0.000	0.000	0.667	0.750	0.850	0.000	0.000	0.000	0.000	0.400	0.583	0.469	0.760
Entering Leg	0	0	0	0	30	14	44	0	0	0	0	1	2	3	0	0	0	0	8	9	17	0	0	0	0	8	7	15	79
Exiting Leg	44							3							17							15							79
Total	88							6							34							30							158

PDI File #: **207732 B**
 Location: **N: Sunnyside Avenue**
 Location: **E: Broadway W: Broadway**
 City, State: **Arlington, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**

Count Date: **Thursday, December 3, 2020**

Start Time: **7:00 AM**

End Time: **9:00 AM**

Class:



Cars and Heavy Vehicles (Combined)

	Sunnyside Avenue				Broadway				Broadway				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:00 AM	8	10	0	18	5	33	0	38	37	3	0	40	96
7:15 AM	0	4	0	4	2	37	0	39	64	0	0	64	107
7:30 AM	0	1	0	1	5	37	0	42	68	1	0	69	112
7:45 AM	1	4	0	5	0	48	0	48	51	1	0	52	105
Total	9	19	0	28	12	155	0	167	220	5	0	225	420
8:00 AM	6	7	0	13	3	32	0	35	56	2	0	58	106
8:15 AM	3	1	0	4	0	42	0	42	50	1	0	51	97
8:30 AM	1	4	0	5	2	30	0	32	52	4	0	56	93
8:45 AM	1	1	0	2	2	45	0	47	62	3	0	65	114
Total	11	13	0	24	7	149	0	156	220	10	0	230	410
Grand Total	20	32	0	52	19	304	0	323	440	15	0	455	830
Approach %	38.5	61.5	0.0		5.9	94.1	0.0		96.7	3.3	0.0		
Total %	2.4	3.9	0.0	6.3	2.3	36.6	0.0	38.9	53.0	1.8	0.0	54.8	
Exiting Leg Total				34				472				324	830
Cars	19	30	0	49	18	279	0	297	419	15	0	434	780
% Cars	95.0	93.8	0.0	94.2	94.7	91.8	0.0	92.0	95.2	100.0	0.0	95.4	94.0
Exiting Leg Total				33				449				298	780
Heavy Vehicles	1	2	0	3	1	25	0	26	21	0	0	21	50
% Heavy Vehicles	5.0	6.3	0.0	5.8	5.3	8.2	0.0	8.0	4.8	0.0	0.0	4.6	6.0
Exiting Leg Total				1				23				26	50

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Sunnyside Avenue					Broadway				Broadway					Total
	from North					from East				from West					
	Right	Left	U-Turn	Total		Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total		
7:15 AM	0	4	0	4		2	37	0	39	64	0	0	64	107	
7:30 AM	0	1	0	1		5	37	0	42	68	1	0	69	112	
7:45 AM	1	4	0	5		0	48	0	48	51	1	0	52	105	
8:00 AM	6	7	0	13		3	32	0	35	56	2	0	58	106	
Total Volume	7	16	0	23		10	154	0	164	239	4	0	243	430	
% Approach Total	30.4	69.6	0.0			6.1	93.9	0.0		98.4	1.6	0.0			
PHF	0.292	0.571	0.000	0.442		0.500	0.802	0.000	0.854	0.879	0.500	0.000	0.880	0.960	
Cars	7	15	0	22		10	144	0	154	230	4	0	234	410	
Cars %	100.0	93.8	0.0	95.7		100.0	93.5	0.0	93.9	96.2	100.0	0.0	96.3	95.3	
Heavy Vehicles	0	1	0	1		0	10	0	10	9	0	0	9	20	
Heavy Vehicles %	0.0	6.3	0.0	4.3		0.0	6.5	0.0	6.1	3.8	0.0	0.0	3.7	4.7	
Cars Enter Leg	7	15	0	22		10	144	0	154	230	4	0	234	410	
Heavy Enter Leg	0	1	0	1		0	10	0	10	9	0	0	9	20	
Total Entering Leg	7	16	0	23		10	154	0	164	239	4	0	243	430	
Cars Exiting Leg				14					245				151	410	
Heavy Exiting Leg				0					10				10	20	
Total Exiting Leg				14					255				161	430	

PDI File #: **207732 B**
 Location: **N: Sunnyside Avenue**
 Location: **E: Broadway W: Broadway**
 City, State: **Arlington, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**

Count Date: **Thursday, December 3, 2020**

Start Time: **7:00 AM**

End Time: **9:00 AM**

Class:



46 Morton Street, Framingham, MA 01702
 Office: 508-875-0100 Fax: 508-875-0118
 Email: datarequests@pdilic.com

Cars

	Sunnyside Avenue					Broadway					Broadway					Total
	from North					from East					from West					
	Right	Left	U-Turn	Total		Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total			
7:00 AM	7	10	0	17		4	30	0	34	34	3	0	37	88		
7:15 AM	0	3	0	3		2	34	0	36	60	0	0	60	99		
7:30 AM	0	1	0	1		5	35	0	40	66	1	0	67	108		
7:45 AM	1	4	0	5		0	44	0	44	49	1	0	50	99		
Total	8	18	0	26		11	143	0	154	209	5	0	214	394		
8:00 AM	6	7	0	13		3	31	0	34	55	2	0	57	104		
8:15 AM	3	1	0	4		0	37	0	37	48	1	0	49	90		
8:30 AM	1	3	0	4		2	25	0	27	47	4	0	51	82		
8:45 AM	1	1	0	2		2	43	0	45	60	3	0	63	110		
Total	11	12	0	23		7	136	0	143	210	10	0	220	386		
Grand Total	19	30	0	49		18	279	0	297	419	15	0	434	780		
Approach %	38.8	61.2	0.0			6.1	93.9	0.0		96.5	3.5	0.0				
Total %	2.4	3.8	0.0	6.3		2.3	35.8	0.0	38.1	53.7	1.9	0.0	55.6			
Exiting Leg Total	33					449					298					780

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Sunnyside Avenue				Broadway				Broadway				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:15 AM	0	3	0	3	2	34	0	36	60	0	0	60	99
7:30 AM	0	1	0	1	5	35	0	40	66	1	0	67	108
7:45 AM	1	4	0	5	0	44	0	44	49	1	0	50	99
8:00 AM	6	7	0	13	3	31	0	34	55	2	0	57	104
Total Volume	7	15	0	22	10	144	0	154	230	4	0	234	410
% Approach Total	31.8	68.2	0.0		6.5	93.5	0.0		98.3	1.7	0.0		
PHF	0.292	0.536	0.000	0.423	0.500	0.818	0.000	0.875	0.871	0.500	0.000	0.873	0.949
Entering Leg	7	15	0	22	10	144	0	154	230	4	0	234	410
Exiting Leg				14				245				151	410
Total				36				399				385	820

PDI File #: **207732 B**
 Location: **N: Sunnyside Avenue**
 Location: **E: Broadway W: Broadway**
 City, State: **Arlington, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**

Count Date: **Thursday, December 3, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**



Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Sunnyside Avenue				Broadway				Broadway				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:00 AM	1	0	0	1	1	3	0	4	3	0	0	3	8
7:15 AM	0	1	0	1	0	3	0	3	4	0	0	4	8
7:30 AM	0	0	0	0	0	2	0	2	2	0	0	2	4
7:45 AM	0	0	0	0	0	4	0	4	2	0	0	2	6
Total	1	1	0	2	1	12	0	13	11	0	0	11	26
8:00 AM	0	0	0	0	0	1	0	1	1	0	0	1	2
8:15 AM	0	0	0	0	0	5	0	5	2	0	0	2	7
8:30 AM	0	1	0	1	0	5	0	5	5	0	0	5	11
8:45 AM	0	0	0	0	0	2	0	2	2	0	0	2	4
Total	0	1	0	1	0	13	0	13	10	0	0	10	24
Grand Total	1	2	0	3	1	25	0	26	21	0	0	21	50
Approach %	33.3	66.7	0.0		3.8	96.2	0.0		100.0	0.0	0.0		
Total %	2.0	4.0	0.0	6.0	2.0	50.0	0.0	52.0	42.0	0.0	0.0	42.0	
Exiting Leg Total	1				23				26				50
Buses	0	0	0	0	0	10	0	10	12	0	0	12	22
% Buses	0.0	0.0	0.0	0.0	0.0	40.0	0.0	38.5	57.1	0.0	0.0	57.1	44.0
Exiting Leg Total	0				12				10				22
Single-Unit Trucks	0	2	0	2	1	14	0	15	6	0	0	6	23
% Single-Unit	0.0	100.0	0.0	66.7	100.0	56.0	0.0	57.7	28.6	0.0	0.0	28.6	46.0
Exiting Leg Total	1				8				14				23
Articulated Trucks	1	0	0	1	0	1	0	1	3	0	0	3	5
% Articulated	100.0	0.0	0.0	33.3	0.0	4.0	0.0	3.8	14.3	0.0	0.0	14.3	10.0
Exiting Leg Total	0				3				2				5

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Sunnyside Avenue				Broadway				Broadway				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:00 AM	1	0	0	1	1	3	0	4	3	0	0	3	8
7:15 AM	0	1	0	1	0	3	0	3	4	0	0	4	8
7:30 AM	0	0	0	0	0	2	0	2	2	0	0	2	4
7:45 AM	0	0	0	0	0	4	0	4	2	0	0	2	6
Total Volume	1	1	0	2	1	12	0	13	11	0	0	11	26
% Approach Total	50.0	50.0	0.0		7.7	92.3	0.0		100.0	0.0	0.0		
PHF	0.250	0.250	0.000	0.500	0.250	0.750	0.000	0.813	0.688	0.000	0.000	0.688	0.813
Buses	0	0	0	0	0	6	0	6	4	0	0	4	10
Buses %	0.0	0.0	0.0	0.0	0.0	50.0	0.0	46.2	36.4	0.0	0.0	36.4	38.5
Single-Unit Trucks	0	1	0	1	1	6	0	7	4	0	0	4	12
Single-Unit %	0.0	100.0	0.0	50.0	100.0	50.0	0.0	53.8	36.4	0.0	0.0	36.4	46.2
Articulated Trucks	1	0	0	1	0	0	0	0	3	0	0	3	4
Articulated %	100.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	27.3	0.0	0.0	27.3	15.4
Buses	0	0	0	0	0	6	0	6	4	0	0	4	10
Single-Unit Trucks	0	1	0	1	1	6	0	7	4	0	0	4	12
Articulated Trucks	1	0	0	1	0	0	0	0	3	0	0	3	4
Total Entering Leg	1	1	0	2	1	12	0	13	11	0	0	11	26
Buses				0				4				6	10
Single-Unit Trucks				1				5				6	12
Articulated Trucks				0				3				1	4
Total Exiting Leg				1				12				13	26

PDI File #: **207732 B**
 Location: **N: Sunnyside Avenue**
 Location: **E: Broadway W: Broadway**
 City, State: **Arlington, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**

Count Date: **Thursday, December 3, 2020**

Start Time: **7:00 AM**

End Time: **9:00 AM**

Class:



46 Morton Street, Framingham, MA 01702
 Office: 508-875-0100 Fax: 508-875-0118
 Email: datarequests@pdilic.com

Buses

	Sunnyside Avenue				Broadway				Broadway				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:00 AM	0	0	0	0	0	3	0	3	1	0	0	1	4
7:15 AM	0	0	0	0	0	1	0	1	1	0	0	1	2
7:30 AM	0	0	0	0	0	1	0	1	1	0	0	1	2
7:45 AM	0	0	0	0	0	1	0	1	1	0	0	1	2
Total	0	0	0	0	0	6	0	6	4	0	0	4	10
8:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	1
8:15 AM	0	0	0	0	0	1	0	1	2	0	0	2	3
8:30 AM	0	0	0	0	0	1	0	1	4	0	0	4	5
8:45 AM	0	0	0	0	0	1	0	1	2	0	0	2	3
Total	0	0	0	0	0	4	0	4	8	0	0	8	12
Grand Total	0	0	0	0	0	10	0	10	12	0	0	12	22
Approach %	0.0	0.0	0.0		0.0	100.0	0.0		100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	45.5	0.0	45.5	54.5	0.0	0.0	54.5	
Exiting Leg Total	0				12				10				22

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Sunnyside Avenue				Broadway				Broadway				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
8:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	1
8:15 AM	0	0	0	0	0	1	0	1	2	0	0	2	3
8:30 AM	0	0	0	0	0	1	0	1	4	0	0	4	5
8:45 AM	0	0	0	0	0	1	0	1	2	0	0	2	3
Total Volume	0	0	0	0	0	4	0	4	8	0	0	8	12
% Approach Total	0.0	0.0	0.0		0.0	100.0	0.0		100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	1.000	0.000	1.000	0.500	0.000	0.000	0.500	0.600
Entering Leg	0	0	0	0	0	4	0	4	8	0	0	8	12
Exiting Leg				0				8				4	12
Total				0				12				12	24

PDI File #: **207732 B**
 Location: **N: Sunnyside Avenue**
 Location: **E: Broadway W: Broadway**
 City, State: **Arlington, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**

Count Date: **Thursday, December 3, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**



Class:

Single-Unit Trucks

	Sunnyside Avenue				Broadway				Broadway				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:00 AM	0	0	0	0	1	0	0	1	2	0	0	2	3
7:15 AM	0	1	0	1	0	2	0	2	1	0	0	1	4
7:30 AM	0	0	0	0	0	1	0	1	0	0	0	0	1
7:45 AM	0	0	0	0	0	3	0	3	1	0	0	1	4
Total	0	1	0	1	1	6	0	7	4	0	0	4	12
8:00 AM	0	0	0	0	0	0	0	0	1	0	0	1	1
8:15 AM	0	0	0	0	0	3	0	3	0	0	0	0	3
8:30 AM	0	1	0	1	0	4	0	4	1	0	0	1	6
8:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	0	1	0	1	0	8	0	8	2	0	0	2	11
Grand Total	0	2	0	2	1	14	0	15	6	0	0	6	23
Approach %	0.0	100.0	0.0		6.7	93.3	0.0		100.0	0.0	0.0		
Total %	0.0	8.7	0.0	8.7	4.3	60.9	0.0	65.2	26.1	0.0	0.0	26.1	
Exiting Leg Total	1				8				14				23

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Sunnyside Avenue				Broadway				Broadway				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:45 AM	0	0	0	0	0	3	0	3	1	0	0	1	4
8:00 AM	0	0	0	0	0	0	0	0	1	0	0	1	1
8:15 AM	0	0	0	0	0	3	0	3	0	0	0	0	3
8:30 AM	0	1	0	1	0	4	0	4	1	0	0	1	6
Total Volume	0	1	0	1	0	10	0	10	3	0	0	3	14
% Approach Total	0.0	100.0	0.0		0.0	100.0	0.0		100.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.250	0.000	0.625	0.000	0.625	0.750	0.000	0.000	0.750	0.583
Entering Leg	0	1	0	1	0	10	0	10	3	0	0	3	14
Exiting Leg				0				4				10	14
Total				1				14				13	28

PDI File #: **207732 B**
 Location: **N: Sunnyside Avenue**
 Location: **E: Broadway W: Broadway**
 City, State: **Arlington, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**

Count Date: **Thursday, December 3, 2020**

Start Time: **7:00 AM**

End Time: **9:00 AM**

Class:



46 Morton Street, Framingham, MA 01702
 Office: 508-875-0100 Fax: 508-875-0118
 Email: datarequests@pdilic.com

Articulated Trucks

	Sunnyside Avenue					Broadway				Broadway				Total
	from North					from East				from West				
	Right	Left	U-Turn	Total		Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	2	0	0	2	2
7:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	1	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	1	0	0	0	0	3	0	0	3	4
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	1	0	1	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Grand Total	1	0	0	0	1	0	1	0	1	3	0	0	3	5
Approach %	100.0	0.0	0.0			0.0	100.0	0.0		100.0	0.0	0.0		
Total %	20.0	0.0	0.0	20.0		0.0	20.0	0.0	20.0	60.0	0.0	0.0	60.0	
Exiting Leg Total	0					3				2				5

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Sunnyside Avenue				Broadway				Broadway				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:00 AM	1	0	0	1	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	2	0	0	2	2
7:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	1	0	0	0	0	3	0	0	3	4
% Approach Total	100.0	0.0	0.0		0.0	0.0	0.0		100.0	0.0	0.0		
PHF	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.375	0.500
Entering Leg	1	0	0	1	0	0	0	0	3	0	0	3	4
Exiting Leg				0				3				1	4
Total				1				3				4	8

PDI File #: 207732 B
 Location: N: Sunnyside Avenue
 Location: E: Broadway W: Broadway
 City, State: Arlington, MA
 Client: Nitsh/ B. Zimolka
 Site Code: TBA



Count Date: Thursday, December 3, 2020

Start Time: 7:00 AM

End Time: 9:00 AM

Class:

Bicycles (on Roadway and Crosswalks)

	Sunnyside Avenue						Broadway						Broadway						Total
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
7:15 AM	1	0	0	0	1	2	0	1	0	1	0	2	0	1	0	0	0	1	5
7:30 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1
7:45 AM	1	0	0	0	1	2	0	1	0	0	0	1	0	0	0	0	0	0	3
Total	2	0	0	0	2	4	0	3	0	1	0	4	1	1	0	0	0	2	10
8:00 AM	0	0	0	1	0	1	0	0	0	0	0	0	2	0	0	0	0	2	3
8:15 AM	0	0	0	0	1	1	0	1	0	0	0	1	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	3
8:45 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1
Total	0	0	0	1	1	2	0	2	0	0	0	2	5	0	0	0	0	5	9
Grand Total	2	0	0	1	3	6	0	5	0	1	0	6	6	1	0	0	0	7	19
Approach %	33.3	0.0	0.0	16.7	50.0		0.0	83.3	0.0	16.7	0.0		85.7	14.3	0.0	0.0	0.0		
Total %	10.5	0.0	0.0	5.3	15.8	31.6	0.0	26.3	0.0	5.3	0.0	31.6	31.6	5.3	0.0	0.0	0.0	36.8	
Exiting Leg Total	5						7						7						19

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Sunnyside Avenue						Broadway						Broadway						Total	
	from North						from East						from West							
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total		
7:15 AM	1	0	0	0	1	2	0	1	0	1	0	2	0	1	0	0	0	0	1	5
7:30 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1
7:45 AM	1	0	0	0	1	2	0	1	0	0	0	1	0	0	0	0	0	0	0	3
8:00 AM	0	0	0	1	0	1	0	0	0	0	0	0	2	0	0	0	0	0	2	3
Total Volume	2	0	0	1	2	5	0	3	0	1	0	4	2	1	0	0	0	0	3	12
% Approach Total	40.0	0.0	0.0	20.0	40.0		0.0	75.0	0.0	25.0	0.0		66.7	33.3	0.0	0.0	0.0			
PHF	0.500	0.000	0.000	0.250	0.500	0.625	0.000	0.750	0.000	0.250	0.000	0.500	0.250	0.250	0.000	0.000	0.000	0.375		0.600
Entering Leg	2	0	0	1	2	5	0	3	0	1	0	4	2	1	0	0	0	0	3	12
Exiting Leg	4						3						5						12	
Total	9						7						8						24	

PDI File #: **207732 B**
 Location: **N: Sunnyside Avenue**
 Location: **E: Broadway W: Broadway**
 City, State: **Arlington, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**



Count Date: **Thursday, December 3, 2020**

Start Time: **7:00 AM**

End Time: **9:00 AM**

Class:

Pedestrians

	Sunnyside Avenue							Broadway							Broadway							Total
	from North							from East							from West							
	Right	Left	U-Turn	CW-EB	CW-WB	Total		Right	Thru	U-Turn	CW-SB	CW-NB	Total		Thru	Left	U-Turn	CW-NB	CW-SB	Total		
7:00 AM	0	0	0	1	1	2		0	0	0	0	0	0		0	0	0	0	0	0		2
7:15 AM	0	0	0	3	1	4		0	0	0	0	0	0		0	0	0	0	0	0		4
7:30 AM	0	0	0	3	1	4		0	0	0	1	0	1		0	0	0	0	0	0		5
7:45 AM	0	0	0	2	4	6		0	0	0	0	0	0		0	0	0	1	0	1		7
Total	0	0	0	9	7	16		0	0	0	1	0	1		0	0	0	1	0	1		18
8:00 AM	0	0	0	3	2	5		0	0	0	0	0	0		0	0	0	0	0	0		5
8:15 AM	0	0	0	1	2	3		0	0	0	0	0	0		0	0	0	0	0	0		3
8:30 AM	0	0	0	2	3	5		0	0	0	0	0	0		0	0	0	1	1	1		6
8:45 AM	0	0	0	2	3	5		0	0	0	0	0	0		0	0	0	0	0	0		5
Total	0	0	0	8	10	18		0	0	0	0	0	0		0	0	0	1	1	1		19
Grand Total	0	0	0	17	17	34		0	0	0	1	0	1		0	0	0	1	1	2		37
Approach %	0	0	0	50	50			0	0	0	100	0			0	0	0	50	50			
Total %	0	0	0	45.946	45.946	91.892		0	0	0	2.7027	0	2.7027		0	0	0	2.7027	2.7027	5.4054		
Exiting Leg Total	34							1							2							37

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Sunnyside Avenue						Broadway						Broadway							
	from North						from East						from West							
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total		
7:15 AM	0	0	0	3	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4
7:30 AM	0	0	0	3	1	4	0	0	0	1	0	1	0	0	0	0	0	0	0	5
7:45 AM	0	0	0	2	4	6	0	0	0	0	0	0	0	0	0	1	0	0	1	7
8:00 AM	0	0	0	3	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Total Volume	0	0	0	11	8	19	0	0	0	1	0	1	0	0	0	1	0	0	1	21
% Approach Total	0.0	0.0	0.0	57.9	42.1		0.0	0.0	0.0	100.0	0.0		0.0	0.0	0.0	100.0	0.0			
PHF	0.000	0.000	0.000	0.917	0.500	0.792	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.250		0.750
Entering Leg	0	0	0	11	8	19	0	0	0	1	0	1	0	0	0	1	0	1		21
Exiting Leg						19						1						1		21
Total						38						2						2		42

PDI File #: **207732 B**
 Location: **N: Sunnyside Avenue**
 Location: **E: Broadway W: Broadway**
 City, State: **Arlington, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**

Count Date: **Thursday, December 3, 2020**

Start Time: **4:00 PM**

End Time: **6:00 PM**

Class:

Cars and Heavy Vehicles (Combined)

	Sunnyside Avenue				Broadway				Broadway				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:00 PM	0	2	0	2	3	49	0	52	67	1	0	68	122
4:15 PM	0	6	0	6	2	52	0	54	80	0	0	80	140
4:30 PM	2	2	0	4	2	45	0	47	88	0	0	88	139
4:45 PM	1	4	0	5	4	61	0	65	72	3	0	75	145
Total	3	14	0	17	11	207	0	218	307	4	0	311	546
5:00 PM	4	2	0	6	3	47	0	50	77	4	0	81	137
5:15 PM	4	2	0	6	5	36	0	41	81	8	0	89	136
5:30 PM	0	3	0	3	1	60	0	61	79	0	0	79	143
5:45 PM	2	3	0	5	3	59	0	62	74	4	0	78	145
Total	10	10	0	20	12	202	0	214	311	16	0	327	561
Grand Total	13	24	0	37	23	409	0	432	618	20	0	638	1107
Approach %	35.1	64.9	0.0		5.3	94.7	0.0		96.9	3.1	0.0		
Total %	1.2	2.2	0.0	3.3	2.1	36.9	0.0	39.0	55.8	1.8	0.0	57.6	
Exiting Leg Total				43				642				422	1107
Cars	12	24	0	36	21	400	0	421	610	19	0	629	1086
% Cars	92.3	100.0	0.0	97.3	91.3	97.8	0.0	97.5	98.7	95.0	0.0	98.6	98.1
Exiting Leg Total				40				634				412	1086
Heavy Vehicles	1	0	0	1	2	9	0	11	8	1	0	9	21
% Heavy Vehicles	7.7	0.0	0.0	2.7	8.7	2.2	0.0	2.5	1.3	5.0	0.0	1.4	1.9
Exiting Leg Total				3				8				10	21

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	Sunnyside Avenue					Broadway				Broadway				Total
	from North					from East				from West				
	Right	Left	U-Turn	Total		Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:15 PM	0	6	0	6		2	52	0	54	80	0	0	80	140
4:30 PM	2	2	0	4		2	45	0	47	88	0	0	88	139
4:45 PM	1	4	0	5		4	61	0	65	72	3	0	75	145
5:00 PM	4	2	0	6		3	47	0	50	77	4	0	81	137
Total Volume	7	14	0	21		11	205	0	216	317	7	0	324	561
% Approach Total	33.3	66.7	0.0			5.1	94.9	0.0		97.8	2.2	0.0		
PHF	0.438	0.583	0.000	0.875		0.688	0.840	0.000	0.831	0.901	0.438	0.000	0.920	0.967
Cars	6	14	0	20		10	202	0	212	312	6	0	318	550
Cars %	85.7	100.0	0.0	95.2		90.9	98.5	0.0	98.1	98.4	85.7	0.0	98.1	98.0
Heavy Vehicles	1	0	0	1		1	3	0	4	5	1	0	6	11
Heavy Vehicles %	14.3	0.0	0.0	4.8		9.1	1.5	0.0	1.9	1.6	14.3	0.0	1.9	2.0
Cars Enter Leg	6	14	0	20		10	202	0	212	312	6	0	318	550
Heavy Enter Leg	1	0	0	1		1	3	0	4	5	1	0	6	11
Total Entering Leg	7	14	0	21		11	205	0	216	317	7	0	324	561
Cars Exiting Leg				16					326				208	550
Heavy Exiting Leg				2					5				4	11
Total Exiting Leg				18					331				212	561

PDI File #: **207732 B**
 Location: **N: Sunnyside Avenue**
 Location: **E: Broadway W: Broadway**
 City, State: **Arlington, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**

Count Date: **Thursday, December 3, 2020**
 Start Time: **4:00 PM**
 End Time: **6:00 PM**



Class:

Cars

	Sunnyside Avenue				Broadway				Broadway				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:00 PM	0	2	0	2	2	46	0	48	66	1	0	67	117
4:15 PM	0	6	0	6	2	52	0	54	78	0	0	78	138
4:30 PM	1	2	0	3	1	44	0	45	87	0	0	87	135
4:45 PM	1	4	0	5	4	60	0	64	71	2	0	73	142
Total	2	14	0	16	9	202	0	211	302	3	0	305	532
5:00 PM	4	2	0	6	3	46	0	49	76	4	0	80	135
5:15 PM	4	2	0	6	5	36	0	41	80	8	0	88	135
5:30 PM	0	3	0	3	1	58	0	59	78	0	0	78	140
5:45 PM	2	3	0	5	3	58	0	61	74	4	0	78	144
Total	10	10	0	20	12	198	0	210	308	16	0	324	554
Grand Total	12	24	0	36	21	400	0	421	610	19	0	629	1086
Approach %	33.3	66.7	0.0		5.0	95.0	0.0		97.0	3.0	0.0		
Total %	1.1	2.2	0.0	3.3	1.9	36.8	0.0	38.8	56.2	1.7	0.0	57.9	
Exiting Leg Total				40				634				412	1086

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Sunnyside Avenue				Broadway				Broadway				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
5:00 PM	4	2	0	6	3	46	0	49	76	4	0	80	135
5:15 PM	4	2	0	6	5	36	0	41	80	8	0	88	135
5:30 PM	0	3	0	3	1	58	0	59	78	0	0	78	140
5:45 PM	2	3	0	5	3	58	0	61	74	4	0	78	144
Total Volume	10	10	0	20	12	198	0	210	308	16	0	324	554
% Approach Total	50.0	50.0	0.0		5.7	94.3	0.0		95.1	4.9	0.0		
PHF	0.625	0.833	0.000	0.833	0.600	0.853	0.000	0.861	0.963	0.500	0.000	0.920	0.962
Entering Leg	10	10	0	20	12	198	0	210	308	16	0	324	554
Exiting Leg				28				318				208	554
Total				48				528				532	1108

PDI File #: **207732 B**
 Location: **N: Sunnyside Avenue**
 Location: **E: Broadway W: Broadway**
 City, State: **Arlington, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**

Count Date: **Thursday, December 3, 2020**
 Start Time: **4:00 PM**
 End Time: **6:00 PM**



Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Sunnyside Avenue				Broadway				Broadway				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:00 PM	0	0	0	0	1	3	0	4	1	0	0	1	5
4:15 PM	0	0	0	0	0	0	0	0	2	0	0	2	2
4:30 PM	1	0	0	1	1	1	0	2	1	0	0	1	4
4:45 PM	0	0	0	0	0	1	0	1	1	1	0	2	3
Total	1	0	0	1	2	5	0	7	5	1	0	6	14
5:00 PM	0	0	0	0	0	1	0	1	1	0	0	1	2
5:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
5:30 PM	0	0	0	0	0	2	0	2	1	0	0	1	3
5:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	0	0	0	0	0	4	0	4	3	0	0	3	7
Grand Total	1	0	0	1	2	9	0	11	8	1	0	9	21
Approach %	100.0	0.0	0.0		18.2	81.8	0.0		88.9	11.1	0.0		
Total %	4.8	0.0	0.0	4.8	9.5	42.9	0.0	52.4	38.1	4.8	0.0	42.9	
Exiting Leg Total	3				8				10				21
Buses	0	0	0	0	0	8	0	8	6	0	0	6	14
% Buses	0.0	0.0	0.0	0.0	0.0	88.9	0.0	72.7	75.0	0.0	0.0	66.7	66.7
Exiting Leg Total	0				6				8				14
Single-Unit Trucks	1	0	0	1	1	1	0	2	1	1	0	2	5
% Single-Unit	100.0	0.0	0.0	100.0	50.0	11.1	0.0	18.2	12.5	100.0	0.0	22.2	23.8
Exiting Leg Total	2				1				2				5
Articulated Trucks	0	0	0	0	1	0	0	1	1	0	0	1	2
% Articulated	0.0	0.0	0.0	0.0	50.0	0.0	0.0	9.1	12.5	0.0	0.0	11.1	9.5
Exiting Leg Total	1				1				0				2

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Sunnyside Avenue				Broadway				Broadway				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:00 PM	0	0	0	0	1	3	0	4	1	0	0	1	5
4:15 PM	0	0	0	0	0	0	0	0	2	0	0	2	2
4:30 PM	1	0	0	1	1	1	0	2	1	0	0	1	4
4:45 PM	0	0	0	0	0	1	0	1	1	1	0	2	3
Total Volume	1	0	0	1	2	5	0	7	5	1	0	6	14
% Approach Total	100.0	0.0	0.0		28.6	71.4	0.0		83.3	16.7	0.0		
PHF	0.250	0.000	0.000	0.250	0.500	0.417	0.000	0.438	0.625	0.250	0.000	0.750	0.700
Buses	0	0	0	0	0	5	0	5	3	0	0	3	8
Buses %	0.0	0.0	0.0	0.0	0.0	100.0	0.0	71.4	60.0	0.0	0.0	50.0	57.1
Single-Unit Trucks	1	0	0	1	1	0	0	1	1	1	0	2	4
Single-Unit %	100.0	0.0	0.0	100.0	50.0	0.0	0.0	14.3	20.0	100.0	0.0	33.3	28.6
Articulated Trucks	0	0	0	0	1	0	0	1	1	0	0	1	2
Articulated %	0.0	0.0	0.0	0.0	50.0	0.0	0.0	14.3	20.0	0.0	0.0	16.7	14.3
Buses	0	0	0	0	0	5	0	5	3	0	0	3	8
Single-Unit Trucks	1	0	0	1	1	0	0	1	1	1	0	2	4
Articulated Trucks	0	0	0	0	1	0	0	1	1	0	0	1	2
Total Entering Leg	1	0	0	1	2	5	0	7	5	1	0	6	14
Buses				0				3				5	8
Single-Unit Trucks				2				1				1	4
Articulated Trucks				1				1				0	2
Total Exiting Leg				3				5				6	14

PDI File #: **207732 B**
 Location: **N: Sunnyside Avenue**
 Location: **E: Broadway W: Broadway**
 City, State: **Arlington, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**
 Count Date: **Thursday, December 3, 2020**
 Start Time: **4:00 PM**
 End Time: **6:00 PM**
 Class:



Buses

	Sunnyside Avenue				Broadway				Broadway				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:00 PM	0	0	0	0	0	3	0	3	1	0	0	1	4
4:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
4:30 PM	0	0	0	0	0	1	0	1	1	0	0	1	2
4:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	0	0	0	0	0	5	0	5	3	0	0	3	8
5:00 PM	0	0	0	0	0	1	0	1	1	0	0	1	2
5:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
5:30 PM	0	0	0	0	0	1	0	1	1	0	0	1	2
5:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	0	0	0	0	0	3	0	3	3	0	0	3	6
Grand Total	0	0	0	0	0	8	0	8	6	0	0	6	14
Approach %	0.0	0.0	0.0		0.0	100.0	0.0		100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	57.1	0.0	57.1	42.9	0.0	0.0	42.9	
Exiting Leg Total	0				6				8				14

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Sunnyside Avenue				Broadway				Broadway				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:00 PM	0	0	0	0	0	3	0	3	1	0	0	1	4
4:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
4:30 PM	0	0	0	0	0	1	0	1	1	0	0	1	2
4:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
Total Volume	0	0	0	0	0	5	0	5	3	0	0	3	8
% Approach Total	0.0	0.0	0.0		0.0	100.0	0.0		100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.417	0.000	0.417	0.750	0.000	0.000	0.750	0.500
Entering Leg	0	0	0	0	0	5	0	5	3	0	0	3	8
Exiting Leg				0				3				5	8
Total				0				8				8	16

PDI File #: **207732 B**
 Location: **N: Sunnyside Avenue**
 Location: **E: Broadway W: Broadway**
 City, State: **Arlington, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**

Count Date: **Thursday, December 3, 2020**

Start Time: **4:00 PM**

End Time: **6:00 PM**

Class:



46 Morton Street, Framingham, MA 01702
 Office: 508-875-0100 Fax: 508-875-0118
 Email: datarequests@pdilic.com

Single-Unit Trucks

	Sunnyside Avenue					Broadway				Broadway				Total
	from North					from East				from West				
	Right	Left	U-Turn	Total		Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:00 PM	0	0	0	0	0	1	0	0	1	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:30 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Total	1	0	0	1	1	0	0	1	1	1	1	0	2	4
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	1	0	1	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Grand Total	1	0	0	1	1	1	0	2	1	1	0	2	5	
Approach %	100.0	0.0	0.0			50.0	50.0	0.0		50.0	50.0	0.0		
Total %	20.0	0.0	0.0	20.0		20.0	20.0	0.0	40.0	20.0	20.0	0.0	40.0	
Exiting Leg Total	2					1				2				5

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Sunnyside Avenue				Broadway				Broadway				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:00 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
4:30 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
Total Volume	1	0	0	1	1	0	0	1	1	1	0	2	4
% Approach Total	100.0	0.0	0.0		100.0	0.0	0.0		50.0	50.0	0.0		
PHF	0.250	0.000	0.000	0.250	0.250	0.000	0.000	0.250	0.250	0.250	0.000	0.500	1.000
Entering Leg	1	0	0	1	1	0	0	1	1	1	0	2	4
Exiting Leg				2				1				1	4
Total				3				2				3	8

PDI File #: **207732 B**
 Location: **N: Sunnyside Avenue**
 Location: **E: Broadway W: Broadway**
 City, State: **Arlington, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**

Count Date: **Thursday, December 3, 2020**

Start Time: **4:00 PM**

End Time: **6:00 PM**

Class:



46 Morton Street, Framingham, MA 01702
 Office: 508-875-0100 Fax: 508-875-0118
 Email: datarequests@pdilic.com

Articulated Trucks

	Sunnyside Avenue				Broadway				Broadway				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	1	0	0	1	1	0	0	1	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	1	0	0	1	1	0	0	1	2
Approach %	0.0	0.0	0.0		100.0	0.0	0.0		100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	50.0	0.0	0.0	50.0	50.0	0.0	0.0	50.0	
Exiting Leg Total	1				1				0				2

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Sunnyside Avenue				Broadway				Broadway				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
Total Volume	0	0	0	0	1	0	0	1	1	0	0	1	2
% Approach Total	0.0	0.0	0.0		100.0	0.0	0.0		100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.250	0.000	0.000	0.250	0.500
Entering Leg	0	0	0	0	1	0	0	1	1	0	0	1	2
Exiting Leg				1				1				0	2
Total				1				2				1	4

PDI File #: 207732 B
 Location: N: Sunnyside Avenue
 Location: E: Broadway W: Broadway
 City, State: Arlington, MA
 Client: Nitsh/ B. Zimolka
 Site Code: TBA



Count Date: Thursday, December 3, 2020
 Start Time: 4:00 PM
 End Time: 6:00 PM

Class: Bicycles (on Roadway and Crosswalks)

	Sunnyside Avenue						Broadway						Broadway						Total	
	from North						from East						from West							
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total		
4:00 PM	0	0	0	0	0	0	0	1	0	0	0	1	2	0	0	0	0	0	2	3
4:15 PM	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	1	2
4:30 PM	0	0	0	1	1	2	0	1	0	0	0	1	0	0	0	0	0	0	0	3
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2
Total	0	0	0	1	1	2	0	3	0	0	0	3	5	0	0	0	0	0	5	10
5:00 PM	0	0	0	0	0	0	0	2	0	0	0	2	1	0	0	0	0	0	1	3
5:15 PM	0	0	0	0	1	1	0	0	0	1	0	1	1	0	0	0	0	0	1	3
5:30 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	1	0	3	0	1	0	4	2	0	0	0	0	0	2	7
Grand Total	0	0	0	1	2	3	0	6	0	1	0	7	7	0	0	0	0	0	7	17
Approach %	0.0	0.0	0.0	33.3	66.7		0.0	85.7	0.0	14.3	0.0		100.0	0.0	0.0	0.0	0.0			
Total %	0.0	0.0	0.0	5.9	11.8	17.6	0.0	35.3	0.0	5.9	0.0	41.2	41.2	0.0	0.0	0.0	0.0		41.2	
Exiting Leg Total	3						8						6						17	

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	Sunnyside Avenue						Broadway						Broadway						Total
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:30 PM	0	0	0	1	1	2	0	1	0	0	0	1	0	0	0	0	0	0	3
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2
5:00 PM	0	0	0	0	0	0	0	2	0	0	0	2	1	0	0	0	0	1	3
5:15 PM	0	0	0	0	1	1	0	0	0	1	0	1	1	0	0	0	0	1	3
Total Volume	0	0	0	1	2	3	0	3	0	1	0	4	4	0	0	0	0	4	11
% Approach Total	0.0	0.0	0.0	33.3	66.7		0.0	75.0	0.0	25.0	0.0		100.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.250	0.500	0.375	0.000	0.375	0.000	0.250	0.000	0.500	0.500	0.000	0.000	0.000	0.000	0.500	0.917
Entering Leg	0	0	0	1	2	3	0	3	0	1	0	4	4	0	0	0	0	4	11
Exiting Leg	3						5						3						11
Total	6						9						7						22

PDI File #: **207732 B**
 Location: **N: Sunnyside Avenue**
 Location: **E: Broadway W: Broadway**
 City, State: **Arlington, MA**
 Client: **Nitsh/ B. Zimolka**
 Site Code: **TBA**



46 Morton Street, Framingham, MA 01702
 Office: 508-875-0100 Fax: 508-875-0118
 Email: datarequests@pdilic.com

Count Date: **Thursday, December 3, 2020**

Start Time: **4:00 PM**

End Time: **6:00 PM**

Class:

Pedestrians

	Sunnyside Avenue						Broadway						Broadway						Total
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:00 PM	0	0	0	4	3	7	0	0	0	0	0	0	0	0	0	0	0	0	7
4:15 PM	0	0	0	4	1	5	0	0	0	0	0	0	0	0	0	0	0	0	5
4:30 PM	0	0	0	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0	3
4:45 PM	0	0	0	3	2	5	0	0	0	0	0	0	0	0	0	0	0	0	5
Total	0	0	0	13	7	20	0	0	0	0	0	0	0	0	0	0	0	0	20
5:00 PM	0	0	0	3	1	4	0	0	0	0	1	1	0	0	0	0	0	0	5
5:15 PM	0	0	0	6	5	11	0	0	0	0	0	0	0	0	0	0	0	0	11
5:30 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	1	6	7	0	0	0	0	0	0	0	0	0	0	0	0	7
Total	0	0	0	10	13	23	0	0	0	0	1	1	0	0	0	0	0	0	24
Grand Total	0	0	0	23	20	43	0	0	0	0	1	1	0	0	0	0	0	0	44
Approach %	0	0	0	53.488	46.512		0	0	0	0	100		0	0	0	0	0		
Total %	0	0	0	52.273	45.455	97.727	0	0	0	0	2.2727	2.2727	0	0	0	0	0	0	
Exiting Leg Total	43						1						0						44

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	Sunnyside Avenue						Broadway						Broadway						Total			
	from North						from East						from West									
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total				
4:30 PM	0	0	0	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3		
4:45 PM	0	0	0	3	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5		
5:00 PM	0	0	0	3	1	4	0	0	0	0	0	1	1	0	0	0	0	0	0	5		
5:15 PM	0	0	0	6	5	11	0	0	0	0	0	0	0	0	0	0	0	0	0	11		
Total Volume	0	0	0	14	9	23	0	0	0	0	1	1	0	0	0	0	0	0	0	24		
% Approach Total	0.0	0.0	0.0	60.9	39.1		0.0	0.0	0.0	0.0	100.0		0.0	0.0	0.0	0.0	0.0					
PHF	0.000	0.000	0.000	0.583	0.450	0.523	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.545		
Entering Leg	0	0	0	14	9	23	0	0	0	0	1	1	0	0	0	0	0	0	0	24		
Exiting Leg							23							1							0	24
Total	46												2							0	48	

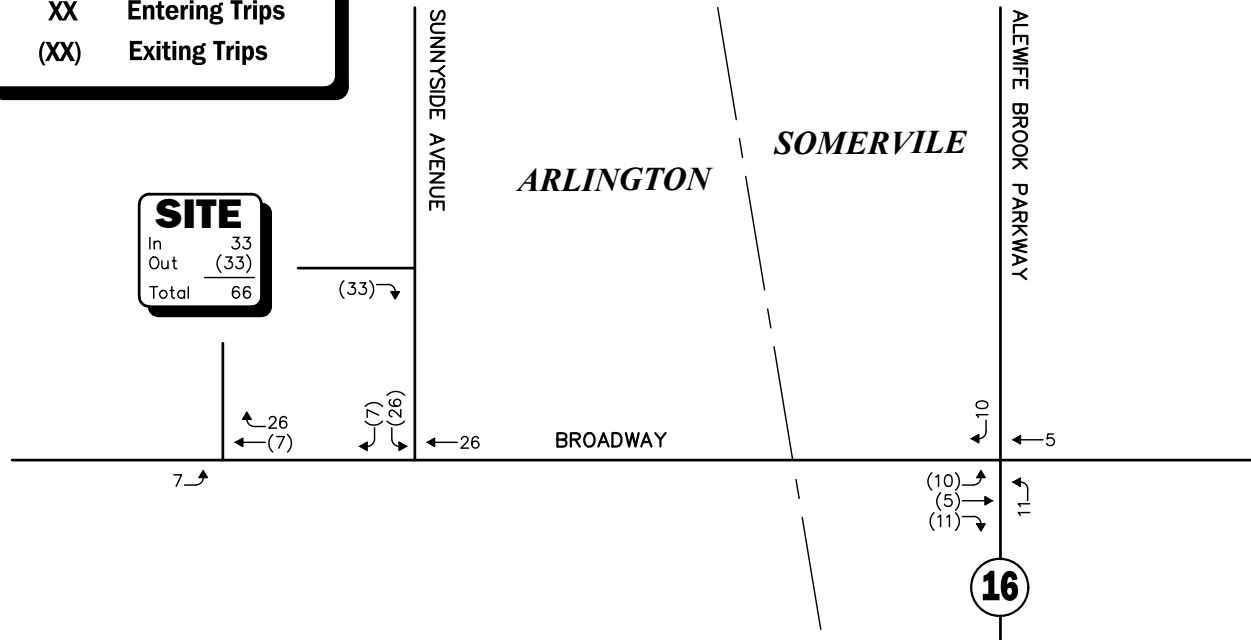


Appendix B: Additional Developments' Trip Generation

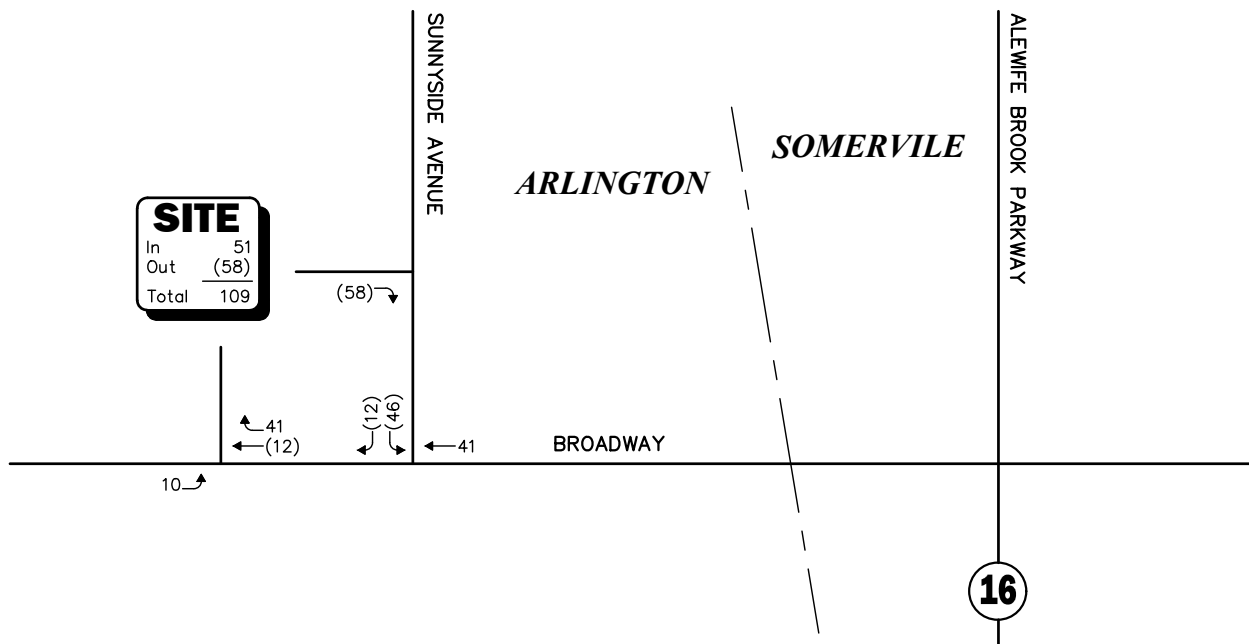
WEEKDAY EVENING PEAK HOUR (4:30 - 5:30 PM)

Legend:

XX Entering Trips
(XX) Exiting Trips



SATURDAY MIDDAY PEAK HOUR (12:00 - 1:00 PM)

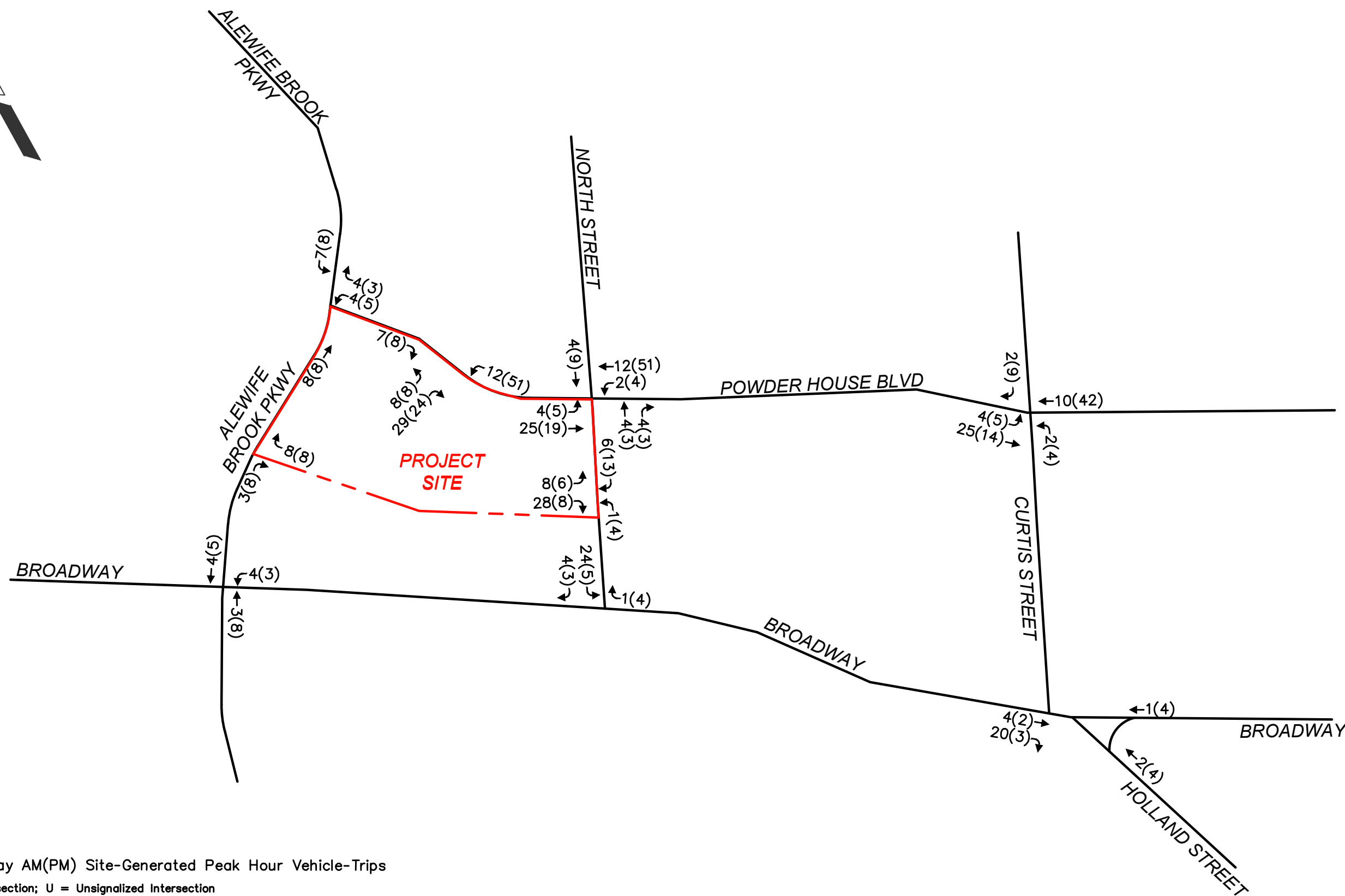
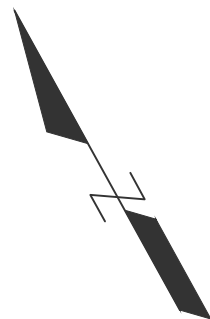


Not To Scale



Figure 6

Project Generated
Peak Hour Traffic Volumes



Legend

XX(YY) → Weekday AM(PM) Site-Generated Peak Hour Vehicle-Trips

S = Signalized Intersection; U = Unsignalized Intersection



DEVELOPER:
REDGATE REAL ESTATE
265 FRANKLIN STREET, 6TH FLOOR
BOSTON, MA 02110

PROJECT TEAM

SITE NAME
34 NORTH STREET
SOMERVILLE, MA

SITE NAME/ADDRESS

Site-Generated Vehicle-Trips

SHEET NAME

Figure D2.2

SHEET #

DR BY: LV/SGS

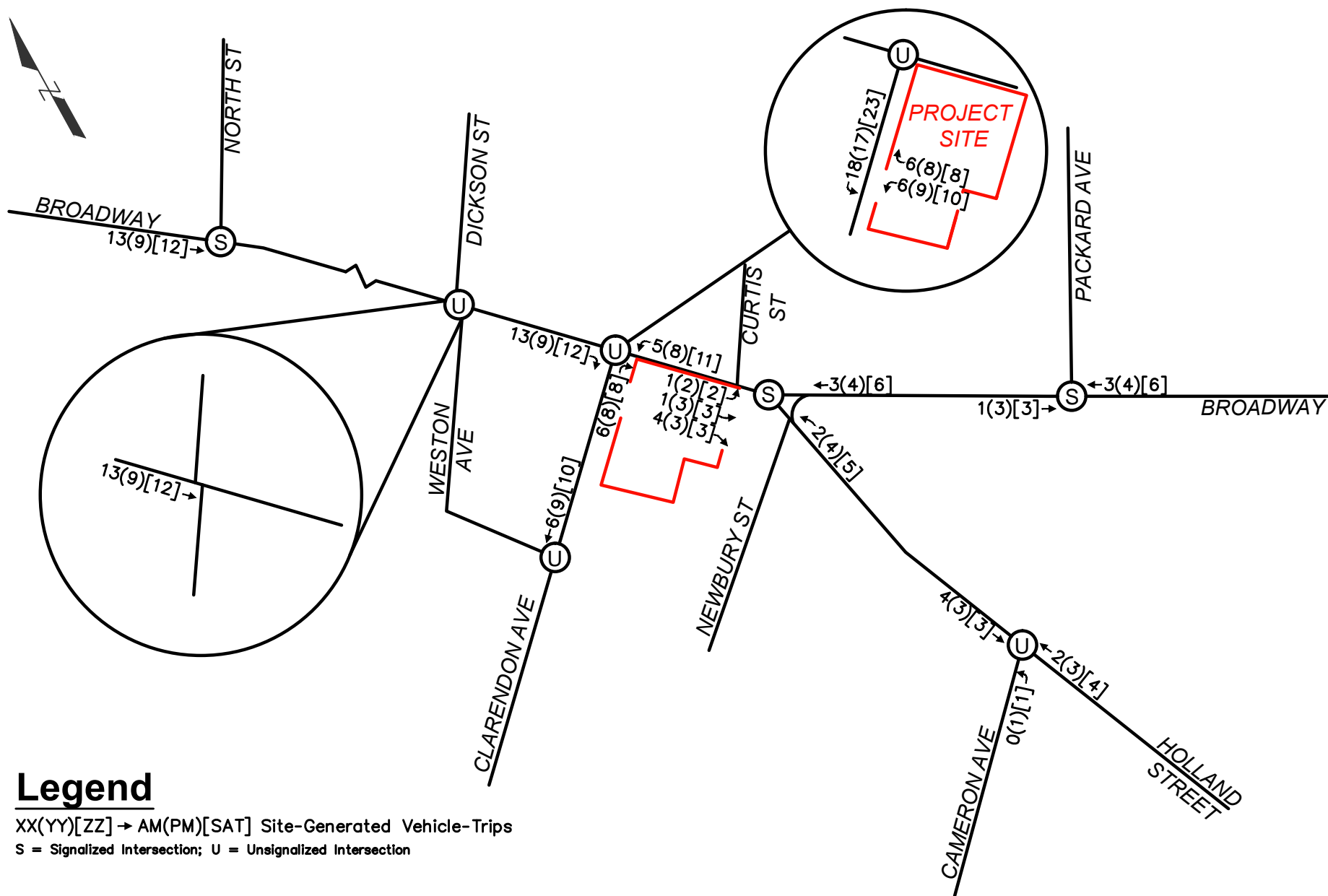
CHK BY: SGS

PROJ NO.: 2016-155

DATE: SEPTEMBER 2019

SCALE: N.T.S.

P:\2016 PROJECTS\2016-155 CLARENDON HILLS 34 NORTH ST SOM\TRAFFIC\CAD\2016-115 TRAFFIC FIGURES SEPTEMBER 2019 REVISION.DWG



P:\2017 PROJECTS\2017-135_1154_BROADWAY_SOMERVILLE\TRAFFIC\CAD\17-135_TRAFFIC FIGURES_3.DWG



1154 BROADWAY
 SOMERVILLE, MA

Site-Generated
 Trips

PROJECT NO.: 2017-135

DATE: APRIL 2018

SCALE: N.T.S.

Figure B6



Appendix C: Detailed Trip Generation

Trip Generation from ITE Method by LUC

Period	Direction	Future Trips					
		LUC 220			LUC 710		
		Multifamily Housing (Low-Rise)			General Office Bldg.		
		(5 Units (vehicle))			(8,000 Sq. ft.) (vehicle)		
		Total Trips	Split	Trips	Total Trips	Split	Trips
AM	Enter	2	0%	0	9	89%	8
	Exit		100%	2		11%	1
PM	Enter	3	67%	2	9	11%	1
	Exit		33%	1		89%	8

















Notes:
 LUC = Land Use Code
 Average rates were used to estimate trip generation.
 Peak-hour trip generation based on peak hours of adjacent street traffic.



Appendix D: Capacity Analysis













Lanes, Volumes, Timings
1: Alewife Brook Pkwy & Broadway

Existing AM Peak






													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Lane Configurations													
Traffic Volume (vph)	163	391	62	188	240	16	29	437	65	45	852	136	
Future Volume (vph)	163	391	62	188	240	16	29	437	65	45	852	136	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	11	11	11	11	11	10	10	10	10	10	10	
Grade (%)		0%			0%			1%			1%		
Storage Length (ft)	0		0	0		175	0		0	0		0	
Storage Lanes	0		0	0		1	0		0	0		0	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Ped Bike Factor		0.99			1.00			1.00			1.00		
Frt		0.985			0.995			0.982			0.980		
Flt Protected		0.987			0.979			0.997			0.998		
Satd. Flow (prot)	0	3346	0	0	3343	0	0	3269	0	0	3269	0	
Flt Permitted		0.987			0.979			0.672			0.847		
Satd. Flow (perm)	0	3346	0	0	3343	0	0	2204	0	0	2775	0	
Right Turn on Red			Yes			Yes			Yes			No	
Satd. Flow (RTOR)		8			2			13					
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		344			754			613			765		
Travel Time (s)		7.8			17.1			13.9			17.4		
Confl. Peds. (#/hr)													
Confl. Bikes (#/hr)			32			4			1			2	
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.89	0.89	0.89	0.92	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	1%	1%	0%	0%	3%	0%	0%	0%	2%	0%	0%	0%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Parking (#/hr)													
Mid-Block Traffic (%)		0%			0%			0%			0%		
Adj. Flow (vph)	175	420	67	204	261	17	33	491	73	49	926	148	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	662	0	0	482	0	0	597	0	0	1123	0	
Turn Type	Split	NA		Split	NA		Perm	NA		Perm	NA		
Protected Phases	4	4		8	8			2			6		9
Permitted Phases							2			6			
Detector Phase	4	4		8	8		2	2		6	6		
Switch Phase													
Minimum Initial (s)	8.0	8.0		12.0	12.0		12.0	12.0		8.0	8.0		1.0
Minimum Split (s)	14.0	14.0		18.0	18.0		18.0	18.0		14.0	14.0		19.0
Total Split (s)	31.0	31.0		26.0	26.0		56.0	56.0		56.0	56.0		19.0
Total Split (%)	23.5%	23.5%		19.7%	19.7%		42.4%	42.4%		42.4%	42.4%		14%
Maximum Green (s)	25.0	25.0		20.0	20.0		50.0	50.0		50.0	50.0		15.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		0.0
Lost Time Adjust (s)		0.0			0.0			0.0			0.0		
Total Lost Time (s)		6.0			6.0			6.0			6.0		
Lead/Lag	Lead	Lead		Lag	Lag								
Lead-Lag Optimize?	Yes	Yes		Yes	Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Recall Mode	None	None		None	None		Min	Min		Min	Min		None
Walk Time (s)													7.0
Flash Dont Walk (s)													8.0
Pedestrian Calls (#/hr)													100
Act Effct Green (s)		25.0			20.0			50.0			50.0		
Actuated g/C Ratio		0.19			0.15			0.38			0.38		
v/c Ratio		1.03			0.95			0.71			1.07		
Control Delay		95.8			84.2			39.6			87.4		
Queue Delay		0.0			0.0			0.0			0.0		
Total Delay		95.8			84.2			39.6			87.4		
LOS		F			F			D			F		
Approach Delay		95.8			84.2			39.6			87.4		
Approach LOS		F			F			D			F		
Queue Length 50th (ft)		~317			217			222			~559		

Lanes, Volumes, Timings
1: Alewife Brook Pkwy & Broadway

Existing AM Peak

















													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Queue Length 95th (ft)		#443			#327			290			#696		
Internal Link Dist (ft)		264			674			533			685		
Turn Bay Length (ft)													
Base Capacity (vph)		640			508			842			1051		
Starvation Cap Reductn		0			0			0			0		
Spillback Cap Reductn		0			0			0			0		
Storage Cap Reductn		0			0			0			0		
Reduced v/c Ratio		1.03			0.95			0.71			1.07		
Intersection Summary													
Area Type:	Other												
Cycle Length: 132													
Actuated Cycle Length: 132													
Natural Cycle: 130													
Control Type: Actuated-Uncoordinated													
Maximum v/c Ratio: 1.07													
Intersection Signal Delay: 78.9	Intersection LOS: E												
Intersection Capacity Utilization 94.3%	ICU Level of Service F												
Analysis Period (min) 15													
~ Volume exceeds capacity, queue is theoretically infinite.													
Queue shown is maximum after two cycles.													
# 95th percentile volume exceeds capacity, queue may be longer.													
Queue shown is maximum after two cycles.													

Splits and Phases: 1: Alewife Brook Pkwy & Broadway

 Ø2	 Ø9	 Ø4	 Ø8
56 s	19 s	31 s	26 s
 Ø6			
56 s			













Lanes, Volumes, Timings
1: Alewife Brook Pkwy & Broadway

Existing PM Peak






													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Lane Configurations													
Traffic Volume (vph)	195	305	46	136	280	22	33	783	165	21	848	134	
Future Volume (vph)	195	305	46	136	280	22	33	783	165	21	848	134	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	11	11	11	11	11	10	10	10	10	10	10	
Grade (%)		0%			0%			1%			1%		
Storage Length (ft)	0		0	0		175	0		0	0		0	
Storage Lanes	0		0	0		1	0		0	0		0	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Ped Bike Factor		1.00			1.00			1.00					
Frt		0.987			0.992			0.975			0.980		
Flt Protected		0.982			0.985			0.998			0.999		
Satd. Flow (prot)	0	3359	0	0	3385	0	0	3255	0	0	3282	0	
Flt Permitted		0.982			0.985			0.703			0.804		
Satd. Flow (perm)	0	3359	0	0	3385	0	0	2293	0	0	2641	0	
Right Turn on Red			Yes			Yes			Yes			No	
Satd. Flow (RTOR)		6			3			21					
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		344			754			613			765		
Travel Time (s)		7.8			17.1			13.9			17.4		
Confl. Peds. (#/hr)													
Confl. Bikes (#/hr)			3			3			1				
Peak Hour Factor	0.86	0.86	0.86	0.96	0.96	0.96	0.96	0.96	0.96	0.92	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Parking (#/hr)													
Mid-Block Traffic (%)		0%			0%			0%			0%		
Adj. Flow (vph)	227	355	53	142	292	23	34	816	172	23	922	146	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	635	0	0	457	0	0	1022	0	0	1091	0	
Turn Type	Split	NA		Split	NA		Perm	NA		Perm	NA		
Protected Phases	4	4		8	8			2			6		9
Permitted Phases							2			6			
Detector Phase	4	4		8	8		2	2		6	6		
Switch Phase													
Minimum Initial (s)	8.0	8.0		12.0	12.0		12.0	12.0		8.0	8.0		1.0
Minimum Split (s)	14.0	14.0		18.0	18.0		18.0	18.0		14.0	14.0		19.0
Total Split (s)	31.0	31.0		26.0	26.0		56.0	56.0		56.0	56.0		19.0
Total Split (%)	23.5%	23.5%		19.7%	19.7%		42.4%	42.4%		42.4%	42.4%		14%
Maximum Green (s)	25.0	25.0		20.0	20.0		50.0	50.0		50.0	50.0		15.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		0.0
Lost Time Adjust (s)		0.0			0.0			0.0			0.0		
Total Lost Time (s)		6.0			6.0			6.0			6.0		
Lead/Lag	Lead	Lead		Lag	Lag								
Lead-Lag Optimize?	Yes	Yes		Yes	Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Recall Mode	None	None		None	None		Min	Min		Min	Min		None
Walk Time (s)													7.0
Flash Dont Walk (s)													8.0
Pedestrian Calls (#/hr)													100
Act Effct Green (s)		25.0			19.5			50.0			50.0		
Actuated g/C Ratio		0.19			0.15			0.38			0.38		
v/c Ratio		0.99			0.91			1.16			1.09		
Control Delay		84.9			77.4			119.5			93.9		
Queue Delay		0.0			0.0			0.0			0.0		
Total Delay		84.9			77.4			119.5			93.9		
LOS		F			E			F			F		
Approach Delay		84.9			77.4			119.5			93.9		
Approach LOS		F			E			F			F		
Queue Length 50th (ft)		286			203			~540			~553		

Lanes, Volumes, Timings
1: Alewife Brook Pkwy & Broadway

Existing PM Peak

















													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Queue Length 95th (ft)		#384			#298			#677			#690		
Internal Link Dist (ft)		264			674			533			685		
Turn Bay Length (ft)													
Base Capacity (vph)		643			517			884			1004		
Starvation Cap Reductn		0			0			0			0		
Spillback Cap Reductn		0			0			0			0		
Storage Cap Reductn		0			0			0			0		
Reduced v/c Ratio		0.99			0.88			1.16			1.09		
Intersection Summary													
Area Type:	Other												
Cycle Length: 132													
Actuated Cycle Length: 131.5													
Natural Cycle: 130													
Control Type: Actuated-Uncoordinated													
Maximum v/c Ratio: 1.16													
Intersection Signal Delay: 97.9				Intersection LOS: F									
Intersection Capacity Utilization 94.4%				ICU Level of Service F									
Analysis Period (min) 15													
~ Volume exceeds capacity, queue is theoretically infinite.													
Queue shown is maximum after two cycles.													
# 95th percentile volume exceeds capacity, queue may be longer.													
Queue shown is maximum after two cycles.													

Splits and Phases: 1: Alewife Brook Pkwy & Broadway

 Ø2	 Ø9	 Ø4	 Ø8
56 s	19 s	31 s	26 s
 Ø6			
56 s			













Lanes, Volumes, Timings
1: Alewife Brook Pkwy & Broadway

No-Build AM Peak






													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Lane Configurations													
Traffic Volume (vph)	187	459	71	220	275	19	33	505	77	53	983	156	
Future Volume (vph)	187	459	71	220	275	19	33	505	77	53	983	156	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	11	11	11	11	11	10	10	10	10	10	10	
Grade (%)		0%			0%			1%			1%		
Storage Length (ft)	0		0	0		175	0		0	0		0	
Storage Lanes	0		0	0		1	0		0	0		0	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Ped Bike Factor		1.00			1.00			1.00			1.00		
Frt		0.985			0.994			0.981			0.980		
Flt Protected		0.987			0.979			0.997			0.998		
Satd. Flow (prot)	0	3346	0	0	3340	0	0	3266	0	0	3269	0	
Flt Permitted		0.987			0.979			0.593			0.780		
Satd. Flow (perm)	0	3346	0	0	3340	0	0	1942	0	0	2555	0	
Right Turn on Red			Yes			Yes			Yes			No	
Satd. Flow (RTOR)		8			2			14					
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		344			754			613			765		
Travel Time (s)		7.8			17.1			13.9			17.4		
Confl. Peds. (#/hr)													
Confl. Bikes (#/hr)			32			4			1			2	
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.89	0.89	0.89	0.92	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	1%	1%	0%	0%	3%	0%	0%	0%	2%	0%	0%	0%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Parking (#/hr)													
Mid-Block Traffic (%)		0%			0%			0%			0%		
Adj. Flow (vph)	201	494	76	239	299	21	37	567	87	58	1068	170	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	771	0	0	559	0	0	691	0	0	1296	0	
Turn Type	Split	NA		Split	NA		Perm	NA		Perm	NA		
Protected Phases	4	4		8	8			2			6		9
Permitted Phases							2			6			
Detector Phase	4	4		8	8		2	2		6	6		
Switch Phase													
Minimum Initial (s)	8.0	8.0		12.0	12.0		12.0	12.0		8.0	8.0		1.0
Minimum Split (s)	14.0	14.0		18.0	18.0		18.0	18.0		14.0	14.0		19.0
Total Split (s)	31.0	31.0		26.0	26.0		56.0	56.0		56.0	56.0		19.0
Total Split (%)	23.5%	23.5%		19.7%	19.7%		42.4%	42.4%		42.4%	42.4%		14%
Maximum Green (s)	25.0	25.0		20.0	20.0		50.0	50.0		50.0	50.0		15.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		0.0
Lost Time Adjust (s)		0.0			0.0			0.0			0.0		
Total Lost Time (s)		6.0			6.0			6.0			6.0		
Lead/Lag	Lead	Lead		Lag	Lag								
Lead-Lag Optimize?	Yes	Yes		Yes	Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Recall Mode	None	None		None	None		Min	Min		Min	Min		None
Walk Time (s)													7.0
Flash Dont Walk (s)													8.0
Pedestrian Calls (#/hr)													100
Act Effct Green (s)		25.0			20.0			50.0			50.0		
Actuated g/C Ratio		0.19			0.15			0.38			0.38		
v/c Ratio		1.20			1.10			0.93			1.34		
Control Delay		151.2			121.7			58.5			194.3		
Queue Delay		0.0			0.0			0.0			0.0		
Total Delay		151.2			121.7			58.5			194.3		
LOS		F			F			E			F		
Approach Delay		151.2			121.7			58.5			194.3		
Approach LOS		F			F			E			F		
Queue Length 50th (ft)		~421			~285			291			~760		

Lanes, Volumes, Timings
1: Alewife Brook Pkwy & Broadway

No-Build AM Peak

















													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Queue Length 95th (ft)		#552			#406			#412			#899		
Internal Link Dist (ft)		264			674			533			685		
Turn Bay Length (ft)													
Base Capacity (vph)		640			507			744			967		
Starvation Cap Reductn		0			0			0			0		
Spillback Cap Reductn		0			0			0			0		
Storage Cap Reductn		0			0			0			0		
Reduced v/c Ratio		1.20			1.10			0.93			1.34		
Intersection Summary													
Area Type:	Other												
Cycle Length: 132													
Actuated Cycle Length: 132													
Natural Cycle: 150													
Control Type: Actuated-Uncoordinated													
Maximum v/c Ratio: 1.34													
Intersection Signal Delay: 143.8					Intersection LOS: F								
Intersection Capacity Utilization 106.0%					ICU Level of Service G								
Analysis Period (min) 15													
~ Volume exceeds capacity, queue is theoretically infinite.													
Queue shown is maximum after two cycles.													
# 95th percentile volume exceeds capacity, queue may be longer.													
Queue shown is maximum after two cycles.													

Splits and Phases: 1: Alewife Brook Pkwy & Broadway

 Ø2	 Ø9	 Ø4	 Ø8
56 s	19 s	31 s	26 s
 Ø6			
56 s			













Lanes, Volumes, Timings
1: Alewife Brook Pkwy & Broadway

No-Build PM Peak

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Lane Configurations													
Traffic Volume (vph)	233	361	64	159	327	25	49	908	192	24	979	164	
Future Volume (vph)	233	361	64	159	327	25	49	908	192	24	979	164	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	11	11	11	11	11	10	10	10	10	10	10	
Grade (%)		0%			0%			1%			1%		
Storage Length (ft)	0		0	0		175	0		0	0		0	
Storage Lanes	0		0	0		1	0		0	0		0	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Ped Bike Factor		1.00			1.00			1.00					
Frt		0.985			0.993			0.975			0.979		
Flt Protected		0.983			0.985			0.998			0.999		
Satd. Flow (prot)	0	3355	0	0	3389	0	0	3255	0	0	3279	0	
Flt Permitted		0.983			0.985			0.561			0.703		
Satd. Flow (perm)	0	3355	0	0	3389	0	0	1830	0	0	2307	0	
Right Turn on Red			Yes			Yes			Yes			No	
Satd. Flow (RTOR)		8			3			20					
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		344			754			613			765		
Travel Time (s)		7.8			17.1			13.9			17.4		
Confl. Peds. (#/hr)													
Confl. Bikes (#/hr)			3			3			1				
Peak Hour Factor	0.86	0.86	0.86	0.96	0.96	0.96	0.96	0.96	0.96	0.92	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Parking (#/hr)													
Mid-Block Traffic (%)		0%			0%			0%			0%		
Adj. Flow (vph)	271	420	74	166	341	26	51	946	200	26	1064	178	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	765	0	0	533	0	0	1197	0	0	1268	0	
Turn Type	Split	NA		Split	NA		Perm	NA		Perm	NA		
Protected Phases	4	4		8	8			2			6		9
Permitted Phases							2			6			
Detector Phase	4	4		8	8		2	2		6	6		
Switch Phase													
Minimum Initial (s)	8.0	8.0		12.0	12.0		12.0	12.0		8.0	8.0		1.0
Minimum Split (s)	14.0	14.0		18.0	18.0		18.0	18.0		14.0	14.0		19.0
Total Split (s)	31.0	31.0		26.0	26.0		56.0	56.0		56.0	56.0		19.0
Total Split (%)	23.5%	23.5%		19.7%	19.7%		42.4%	42.4%		42.4%	42.4%		14%
Maximum Green (s)	25.0	25.0		20.0	20.0		50.0	50.0		50.0	50.0		15.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		0.0
Lost Time Adjust (s)		0.0			0.0			0.0			0.0		
Total Lost Time (s)		6.0			6.0			6.0			6.0		
Lead/Lag	Lead	Lead		Lag	Lag								
Lead-Lag Optimize?	Yes	Yes		Yes	Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Recall Mode	None	None		None	None		Min	Min		Min	Min		None
Walk Time (s)													7.0
Flash Dont Walk (s)													8.0
Pedestrian Calls (#/hr)													100
Act Effct Green (s)		25.0			20.0			50.0			50.0		
Actuated g/C Ratio		0.19			0.15			0.38			0.38		
v/c Ratio		1.19			1.03			1.70			1.45		
Control Delay		147.0			102.1			348.5			242.3		
Queue Delay		0.0			0.0			0.0			0.0		
Total Delay		147.0			102.1			348.5			242.3		
LOS		F			F			F			F		
Approach Delay		147.0			102.1			348.5			242.3		
Approach LOS		F			F			F			F		
Queue Length 50th (ft)		~414			~256			~791			~777		

Lanes, Volumes, Timings
1: Alewife Brook Pkwy & Broadway

No-Build PM Peak

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Queue Length 95th (ft)		#507			#375			#932			#917		
Internal Link Dist (ft)		264			674			533			685		
Turn Bay Length (ft)													
Base Capacity (vph)		641			516			705			873		
Starvation Cap Reductn		0			0			0			0		
Spillback Cap Reductn		0			0			0			0		
Storage Cap Reductn		0			0			0			0		
Reduced v/c Ratio		1.19			1.03			1.70			1.45		

Intersection Summary

Area Type: Other

Cycle Length: 132

Actuated Cycle Length: 132

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.70

Intersection Signal Delay: 236.9

Intersection LOS: F

Intersection Capacity Utilization 116.4%

ICU Level of Service H

Analysis Period (min) 15






~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

















Queue shown is maximum after two cycles.

Splits and Phases: 1: Alewife Brook Pkwy & Broadway

 Ø2	 Ø9	 Ø4	 Ø8
56 s	19 s	31 s	26 s
 Ø6			
56 s			













Lanes, Volumes, Timings
1: Alewife Brook Pkwy & Broadway

Build AM Peak

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Lane Configurations													
Traffic Volume (vph)	188	460	71	220	278	19	33	505	77	53	983	158	
Future Volume (vph)	188	460	71	220	278	19	33	505	77	53	983	158	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	11	11	11	11	11	10	10	10	10	10	10	
Grade (%)		0%			0%			1%			1%		
Storage Length (ft)	0		0	0		175	0		0	0		0	
Storage Lanes	0		0	0		1	0		0	0		0	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Ped Bike Factor		1.00			1.00			1.00			1.00		
Frt		0.985			0.994			0.981			0.980		
Flt Protected		0.987			0.979			0.997			0.998		
Satd. Flow (prot)	0	3346	0	0	3340	0	0	3266	0	0	3269	0	
Flt Permitted		0.987			0.979			0.592			0.781		
Satd. Flow (perm)	0	3346	0	0	3340	0	0	1939	0	0	2558	0	
Right Turn on Red			Yes			Yes			Yes			No	
Satd. Flow (RTOR)		8			2			14					
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		344			754			613			765		
Travel Time (s)		7.8			17.1			13.9			17.4		
Confl. Peds. (#/hr)													
Confl. Bikes (#/hr)			32			4			1			2	
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.89	0.89	0.89	0.92	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	1%	1%	0%	0%	3%	0%	0%	0%	2%	0%	0%	0%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Parking (#/hr)													
Mid-Block Traffic (%)		0%			0%			0%			0%		
Adj. Flow (vph)	202	495	76	239	302	21	37	567	87	58	1068	172	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	773	0	0	562	0	0	691	0	0	1298	0	
Turn Type	Split	NA		Split	NA		Perm	NA		Perm	NA		
Protected Phases	4	4		8	8			2			6		9
Permitted Phases							2			6			
Detector Phase	4	4		8	8		2	2		6	6		
Switch Phase													
Minimum Initial (s)	8.0	8.0		12.0	12.0		12.0	12.0		8.0	8.0		1.0
Minimum Split (s)	14.0	14.0		18.0	18.0		18.0	18.0		14.0	14.0		19.0
Total Split (s)	31.0	31.0		26.0	26.0		56.0	56.0		56.0	56.0		19.0
Total Split (%)	23.5%	23.5%		19.7%	19.7%		42.4%	42.4%		42.4%	42.4%		14%
Maximum Green (s)	25.0	25.0		20.0	20.0		50.0	50.0		50.0	50.0		15.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		0.0
Lost Time Adjust (s)		0.0			0.0			0.0			0.0		
Total Lost Time (s)		6.0			6.0			6.0			6.0		
Lead/Lag	Lead	Lead		Lag	Lag								
Lead-Lag Optimize?	Yes	Yes		Yes	Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Recall Mode	None	None		None	None		Min	Min		Min	Min		None
Walk Time (s)													7.0
Flash Dont Walk (s)													8.0
Pedestrian Calls (#/hr)													100
Act Effct Green (s)		25.0			20.0			50.0			50.0		
Actuated g/C Ratio		0.19			0.15			0.38			0.38		
v/c Ratio		1.21			1.11			0.93			1.34		
Control Delay		152.4			123.6			58.7			194.6		
Queue Delay		0.0			0.0			0.0			0.0		
Total Delay		152.4			123.6			58.7			194.6		
LOS		F			F			E			F		
Approach Delay		152.4			123.6			58.7			194.6		
Approach LOS		F			F			E			F		
Queue Length 50th (ft)		~422			~288			291			~761		

Lanes, Volumes, Timings
1: Alewife Brook Pkwy & Broadway

Build AM Peak

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Queue Length 95th (ft)		#553			#408			#412			#901		
Internal Link Dist (ft)		264			674			533			685		
Turn Bay Length (ft)													
Base Capacity (vph)		640			507			743			968		
Starvation Cap Reductn		0			0			0			0		
Spillback Cap Reductn		0			0			0			0		
Storage Cap Reductn		0			0			0			0		
Reduced v/c Ratio		1.21			1.11			0.93			1.34		

Intersection Summary

Area Type: Other

Cycle Length: 132

Actuated Cycle Length: 132

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.34

Intersection Signal Delay: 144.5

Intersection LOS: F

Intersection Capacity Utilization 106.2%

ICU Level of Service G

Analysis Period (min) 15






~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

















Queue shown is maximum after two cycles.

Splits and Phases: 1: Alewife Brook Pkwy & Broadway

 Ø2	 Ø9	 Ø4	 Ø8
56 s	19 s	31 s	26 s
 Ø6			
56 s			













Lanes, Volumes, Timings
1: Alewife Brook Pkwy & Broadway

Build PM Peak

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Lane Configurations													
Traffic Volume (vph)	235	365	64	159	328	25	49	908	192	24	979	165	
Future Volume (vph)	235	365	64	159	328	25	49	908	192	24	979	165	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	11	11	11	11	11	10	10	10	10	10	10	
Grade (%)		0%			0%			1%			1%		
Storage Length (ft)	0		0	0		175	0		0	0		0	
Storage Lanes	0		0	0		1	0		0	0		0	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Ped Bike Factor		1.00			1.00			1.00					
Frt		0.986			0.993			0.975			0.979		
Flt Protected		0.983			0.985			0.998			0.999		
Satd. Flow (prot)	0	3359	0	0	3389	0	0	3255	0	0	3279	0	
Flt Permitted		0.983			0.985			0.561			0.703		
Satd. Flow (perm)	0	3359	0	0	3389	0	0	1830	0	0	2307	0	
Right Turn on Red			Yes			Yes			Yes			No	
Satd. Flow (RTOR)		7			3			20					
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		344			754			613			765		
Travel Time (s)		7.8			17.1			13.9			17.4		
Confl. Peds. (#/hr)													
Confl. Bikes (#/hr)			3			3			1				
Peak Hour Factor	0.86	0.86	0.86	0.96	0.96	0.96	0.96	0.96	0.96	0.92	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Parking (#/hr)													
Mid-Block Traffic (%)		0%			0%			0%			0%		
Adj. Flow (vph)	273	424	74	166	342	26	51	946	200	26	1064	179	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	771	0	0	534	0	0	1197	0	0	1269	0	
Turn Type	Split	NA		Split	NA		Perm	NA		Perm	NA		
Protected Phases	4	4		8	8			2			6		9
Permitted Phases							2			6			
Detector Phase	4	4		8	8		2	2		6	6		
Switch Phase													
Minimum Initial (s)	8.0	8.0		12.0	12.0		12.0	12.0		8.0	8.0		1.0
Minimum Split (s)	14.0	14.0		18.0	18.0		18.0	18.0		14.0	14.0		19.0
Total Split (s)	31.0	31.0		26.0	26.0		56.0	56.0		56.0	56.0		19.0
Total Split (%)	23.5%	23.5%		19.7%	19.7%		42.4%	42.4%		42.4%	42.4%		14%
Maximum Green (s)	25.0	25.0		20.0	20.0		50.0	50.0		50.0	50.0		15.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		0.0
Lost Time Adjust (s)		0.0			0.0			0.0			0.0		
Total Lost Time (s)		6.0			6.0			6.0			6.0		
Lead/Lag	Lead	Lead		Lag	Lag								
Lead-Lag Optimize?	Yes	Yes		Yes	Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Recall Mode	None	None		None	None		Min	Min		Min	Min		None
Walk Time (s)													7.0
Flash Dont Walk (s)													8.0
Pedestrian Calls (#/hr)													100
Act Effct Green (s)		25.0			20.0			50.0			50.0		
Actuated g/C Ratio		0.19			0.15			0.38			0.38		
v/c Ratio		1.20			1.03			1.70			1.45		
Control Delay		150.6			102.6			348.5			242.8		
Queue Delay		0.0			0.0			0.0			0.0		
Total Delay		150.6			102.6			348.5			242.8		
LOS		F			F			F			F		
Approach Delay		150.6			102.6			348.5			242.8		
Approach LOS		F			F			F			F		
Queue Length 50th (ft)		~420			~257			~791			~778		

Lanes, Volumes, Timings
1: Alewife Brook Pkwy & Broadway

Build PM Peak

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Queue Length 95th (ft)		#513			#377			#932			#918		
Internal Link Dist (ft)		264			674			533			685		
Turn Bay Length (ft)													
Base Capacity (vph)		641			516			705			873		
Starvation Cap Reductn		0			0			0			0		
Spillback Cap Reductn		0			0			0			0		
Storage Cap Reductn		0			0			0			0		
Reduced v/c Ratio		1.20			1.03			1.70			1.45		

Intersection Summary

Area Type: Other

Cycle Length: 132

Actuated Cycle Length: 132

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.70

Intersection Signal Delay: 237.6

Intersection LOS: F

Intersection Capacity Utilization 116.6%

ICU Level of Service H

Analysis Period (min) 15






~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.




Queue shown is maximum after two cycles.

Splits and Phases: 1: Alewife Brook Pkwy & Broadway

 Ø2	 Ø9	 Ø4	 Ø8
56 s	19 s	31 s	26 s
 Ø6			
56 s			




HCM 6th TWSC
2: Broadway & Sunnyside Ave




Existing AM Peak




Intersection						
Int Delay, s/veh	3.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	577	380	25	39	17
Future Vol, veh/h	10	577	380	25	39	17
Conflicting Peds, #/hr	19	0	0	19	19	19
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	85	85	44	44
Heavy Vehicles, %	0	4	6	0	6	0
Mvmt Flow	11	656	447	29	89	39
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	495	0	-	0	1178	500
Stage 1	-	-	-	-	481	-
Stage 2	-	-	-	-	697	-
Critical Hdwy	4.1	-	-	-	6.46	6.2
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	2.2	-	-	-	3.554	3.3
Pot Cap-1 Maneuver	1079	-	-	-	207	575
Stage 1	-	-	-	-	613	-
Stage 2	-	-	-	-	487	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1059	-	-	-	196	551
Mov Cap-2 Maneuver	-	-	-	-	196	-
Stage 1	-	-	-	-	592	-
Stage 2	-	-	-	-	478	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		34.8		
HCM LOS				D		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1059	-	-	-	244	
HCM Lane V/C Ratio	0.011	-	-	-	0.522	
HCM Control Delay (s)	8.4	0	-	-	34.8	
HCM Lane LOS	A	A	-	-	D	
HCM 95th %tile Q(veh)	0	-	-	-	2.8	




HCM 6th TWSC
2: Broadway & Sunnyside Ave

Existing PM Peak

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	523	424	23	23	14
Future Vol, veh/h	12	523	424	23	23	14
Conflicting Peds, #/hr	23	0	0	23	23	23
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	84	84	71	71
Heavy Vehicles, %	25	2	2	18	0	33
Mvmt Flow	14	594	505	27	32	20
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	555	0	-	0	1187	565
Stage 1	-	-	-	-	542	-
Stage 2	-	-	-	-	645	-
Critical Hdwy	4.35	-	-	-	6.4	6.53
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.425	-	-	-	3.5	3.597
Pot Cap-1 Maneuver	910	-	-	-	210	470
Stage 1	-	-	-	-	587	-
Stage 2	-	-	-	-	526	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	890	-	-	-	196	446
Mov Cap-2 Maneuver	-	-	-	-	196	-
Stage 1	-	-	-	-	561	-
Stage 2	-	-	-	-	514	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		23.2		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	890	-	-	-	249	
HCM Lane V/C Ratio	0.015	-	-	-	0.209	
HCM Control Delay (s)	9.1	0	-	-	23.2	
HCM Lane LOS	A	A	-	-	C	
HCM 95th %tile Q(veh)	0	-	-	-	0.8	




Intersection						
Int Delay, s/veh	6.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	673	436	28	44	20
Future Vol, veh/h	11	673	436	28	44	20
Conflicting Peds, #/hr	19	0	0	19	19	19
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	85	85	44	44
Heavy Vehicles, %	0	4	6	0	6	0
Mvmt Flow	13	765	513	33	100	45
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	565	0	-	0	1359	568
Stage 1	-	-	-	-	549	-
Stage 2	-	-	-	-	810	-
Critical Hdwy	4.1	-	-	-	6.46	6.2
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	2.2	-	-	-	3.554	3.3
Pot Cap-1 Maneuver	1017	-	-	-	161	526
Stage 1	-	-	-	-	571	-
Stage 2	-	-	-	-	431	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	999	-	-	-	152	504
Mov Cap-2 Maneuver	-	-	-	-	152	-
Stage 1	-	-	-	-	548	-
Stage 2	-	-	-	-	423	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		64.4		
HCM LOS				F		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	999	-	-	-	194	
HCM Lane V/C Ratio	0.013	-	-	-	0.75	
HCM Control Delay (s)	8.6	0	-	-	64.4	
HCM Lane LOS	A	A	-	-	F	
HCM 95th %tile Q(veh)	0	-	-	-	5	

Intersection						
Int Delay, s/veh	3.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	13	607	513	26	53	24
Future Vol, veh/h	13	607	513	26	53	24
Conflicting Peds, #/hr	23	0	0	23	23	23
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	84	84	71	71
Heavy Vehicles, %	25	2	2	18	0	33
Mvmt Flow	15	690	611	31	75	34
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	665	0	-	0	1393	673
Stage 1	-	-	-	-	650	-
Stage 2	-	-	-	-	743	-
Critical Hdwy	4.35	-	-	-	6.4	6.53
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.425	-	-	-	3.5	3.597
Pot Cap-1 Maneuver	825	-	-	-	158	406
Stage 1	-	-	-	-	523	-
Stage 2	-	-	-	-	474	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	807	-	-	-	147	386
Mov Cap-2 Maneuver	-	-	-	-	147	-
Stage 1	-	-	-	-	496	-
Stage 2	-	-	-	-	464	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		50.4		
HCM LOS				F		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	807	-	-	-	182	
HCM Lane V/C Ratio	0.018	-	-	-	0.596	
HCM Control Delay (s)	9.5	0	-	-	50.4	
HCM Lane LOS	A	A	-	-	F	
HCM 95th %tile Q(veh)	0.1	-	-	-	3.3	

Intersection						
Int Delay, s/veh	7.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	14	673	436	33	46	21
Future Vol, veh/h	14	673	436	33	46	21
Conflicting Peds, #/hr	19	0	0	19	19	19
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	85	85	44	44
Heavy Vehicles, %	0	4	6	0	6	0
Mvmt Flow	16	765	513	39	105	48
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	571	0	-	0	1368	571
Stage 1	-	-	-	-	552	-
Stage 2	-	-	-	-	816	-
Critical Hdwy	4.1	-	-	-	6.46	6.2
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	2.2	-	-	-	3.554	3.3
Pot Cap-1 Maneuver	1012	-	-	-	159	524
Stage 1	-	-	-	-	569	-
Stage 2	-	-	-	-	428	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	994	-	-	-	149	502
Mov Cap-2 Maneuver	-	-	-	-	149	-
Stage 1	-	-	-	-	543	-
Stage 2	-	-	-	-	420	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		72.3		
HCM LOS				F		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	994	-	-	-	191	
HCM Lane V/C Ratio	0.016	-	-	-	0.797	
HCM Control Delay (s)	8.7	0	-	-	72.3	
HCM Lane LOS	A	A	-	-	F	
HCM 95th %tile Q(veh)	0	-	-	-	5.5	

HCM 6th TWSC
2: Broadway & Sunnyside Ave

Build PM Peak

Intersection						
Int Delay, s/veh	4.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	14	607	513	28	59	27
Future Vol, veh/h	14	607	513	28	59	27
Conflicting Peds, #/hr	23	0	0	23	23	23
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	84	84	71	71
Heavy Vehicles, %	25	2	2	18	0	33
Mvmt Flow	16	690	611	33	83	38
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	667	0	-	0	1396	674
Stage 1	-	-	-	-	651	-
Stage 2	-	-	-	-	745	-
Critical Hdwy	4.35	-	-	-	6.4	6.53
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.425	-	-	-	3.5	3.597
Pot Cap-1 Maneuver	823	-	-	-	157	405
Stage 1	-	-	-	-	523	-
Stage 2	-	-	-	-	473	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	805	-	-	-	145	385
Mov Cap-2 Maneuver	-	-	-	-	145	-
Stage 1	-	-	-	-	495	-
Stage 2	-	-	-	-	463	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		58.5		
HCM LOS				F		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	805	-	-	-	180	
HCM Lane V/C Ratio	0.02	-	-	-	0.673	
HCM Control Delay (s)	9.6	0	-	-	58.5	
HCM Lane LOS	A	A	-	-	F	
HCM 95th %tile Q(veh)	0.1	-	-	-	4	

HCM 6th TWSC
3: Sunnyside Ave & Site Dr

Build AM Peak

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	🚗🚗			🚗🚗	🚗🚗	
Traffic Vol, veh/h	0	3	8	39	64	0
Future Vol, veh/h	0	3	8	39	64	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	3	9	42	70	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	130	70	70	0	-	0
Stage 1	70	-	-	-	-	-
Stage 2	60	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	864	993	1531	-	-	-
Stage 1	953	-	-	-	-	-
Stage 2	963	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	859	993	1531	-	-	-
Mov Cap-2 Maneuver	859	-	-	-	-	-
Stage 1	947	-	-	-	-	-
Stage 2	963	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.6	1.3		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1531	-	993	-	-	
HCM Lane V/C Ratio	0.006	-	0.003	-	-	
HCM Control Delay (s)	7.4	0	8.6	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	0	9	3	39	43	0
Future Vol, veh/h	0	9	3	39	43	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	0
Mvmt Flow	0	10	3	42	47	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	95	47	47	0	-	0
Stage 1	47	-	-	-	-	-
Stage 2	48	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	905	1022	1560	-	-	-
Stage 1	975	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	903	1022	1560	-	-	-
Mov Cap-2 Maneuver	903	-	-	-	-	-
Stage 1	973	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.6	0.5		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1560	-	1022	-	-	
HCM Lane V/C Ratio	0.002	-	0.01	-	-	
HCM Control Delay (s)	7.3	0	8.6	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	